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LIVESTOCK GRAZING ENVIRONMENTAL IMPACT STATEMENT

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DEPARTMENT OF THE INTERIOR

TWIN FALLS LIVESTOCK GRAZING PROGRAM

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Prepared by

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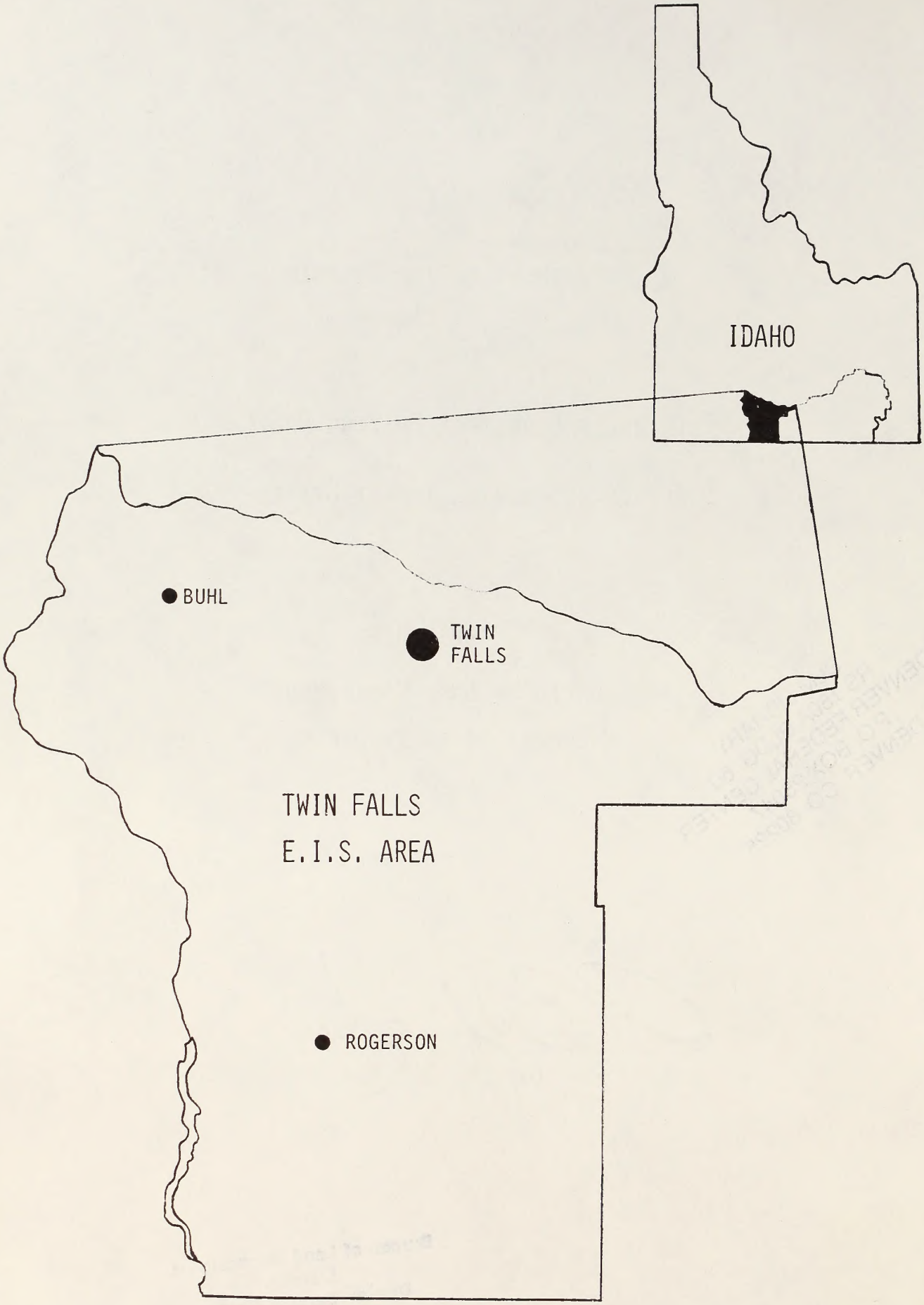
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TWIN FALLS GRAZING
ENVIRONMENTAL IMPACT STATEMENT

(X) Draft ( ) Final Environmental Impact Statement

1. Type of Action: (X) Administrative ( ) Legislative

2. Responsible Agencies:

   a. Lead Agency: Department of the Interior, Bureau of Land Management

   b. Cooperating Agencies: None

3. Abstract: The Twin Falls Grazing Environmental Impact Statement analyzes the effects of livestock grazing on 231,298 acres of public land in southeastern Idaho. Five grazing management alternatives are presented for consideration and are analyzed in terms of their projected ecomomic, social and environmental effects. Each alternative analyzes a different level of allocating the vegetative resource among competing uses.

   This document will be used to determine the proper level of livestock grazing on the public lands, using the multiple use sustained-yield concept. Its contents exemplify the conflicting demands being placed on public lands throughout the west and the fact that concessions are necessary to achieve parity between resource needs and resource use. The rangeland management program selected for the subject public land will be based upon the analysis presented in this document.

4. Comments Must Be Received By: March 26, 1982

5. Send Comments To - And For Further Information Contact:

Nick James Cozakos, District Manager or
Mike Haase, Team Leader
Bureau of Land Management
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SUMMARY

The purpose of this environmental impact statement (EIS) is to analyze the effects of implementing a livestock grazing program on 231,298 acres of public land in Twin Falls County, Idaho. The analysis developed in this document will provide the decision-maker and the public with an assessment of environmental impacts which would result from implementation of the livestock grazing program. The proposed management alternatives were developed through the Bureau of Land Management (BLM), Burley District's Management Framework Plan for the Twin Falls Planning Unit. With the exception of one alternative designed to maximize livestock grazing, the five alternatives addressed are designed to improve or maintain soil, watershed, vegetation, wildlife, and other resource conditions.

Alternative levels of forage allocation, methods of livestock grazing management, and necessary supporting facilities (i.e., water developments, fencing, land treatment projects, etc.) are addressed. Alternatives in addition to the proposed action (a multiple-use mix of activities providing benefits to all resources) are: 1) increased livestock use, 2) existing stocking level, 3) reduced livestock use, and 4) no livestock grazing.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

The BLM has analyzed the impacts of the following five alternatives:

Alternative A - Proposed Action (Preferred Alternative). The Proposed Action would allocate vegetation for consumptive use by livestock (on 76 allotments) and big game (mule deer and antelope). Vegetation would be allocated to satisfy present and projected wildlife numbers determined during the BLM planning process and consultation with the Idaho Department of Fish and Game (IDFG). Initially, livestock use would be reduced from the six-year average on 21 allotments, remain unchanged on 19 allotments, and increase on 36 allotments. The initial allocation to livestock would be 57,416 AUMS - 26 percent above grazing preference, five precent above the six-year average use. The allocation for wildlife would be 2,661 AUMs which satisfies the needs of present big game populations. The long-term allocations would increase to 4,405 AUMs to provide needed forage for projected big game populations and 73,550 AUMs for livestock. New range improvements and maintenance of existing land treatments would provide the bulk of this increase. This level of livestock use is 62 percent above preference, 34 percent above average use. Livestock use on nine allotments would remain below the current level of use.

Under the Proposed Action four grazing management systems would be used: 1) rest-rotation on 19 allotments (60,138 acres), 2) deferred rotation on 32 allotments (128,025 acres), 3) seasonal use on 15 allotments (27,439 acres), and 4) custodial use on 12 allotments (7,740 acres). Three treatments - grazing prior to seedripe, grazing after seedripe, and yearlong rest - would be employed under rest-rotation and deferred rotation systems. Existing allotment management plans (AMPs) would continue to be implemented (28 AMPs covering 32 allotments) and updated as necessary. New AMPs and/or Integrated Ranch Plans (IRPs) would be developed as needed.

Implementation of the Proposed Action would require installation of the following range improvements and land treatment maintenance:

Water Troughs	- 30	Cattleguards	- 15
Fences	- 13.75 mi.	Plow and Drill Seed	- 416 ac.
Pipelines	- 25.75 mi.	Rail and Aerial Seed	- 150 ac.
Spring Developments	- 2	Burn and Drill Seed	- 5,364 ac.
Reservoirs	- 6	Spray and Drill Seed	- 4,011 ac.
Pumping Stations	- 1	Spray	- 3,603 ac.

Seeding Maintenance:

Burning	-	21,812 ac.
Spraying	-	10,848 ac.
Railing	-	294 ac.

Also included in the Proposed Action are the following wildlife projects:

Fences	- 11.05 mi.	Big Game Guzzlers	- 3
Pipelines	- 0.75 mi.	Bird Guzzlers	- 11
Potholes	- 2		

Alternative B - Increased Livestock Use. The initial allocation of vegetation for consumptive use under this alternative includes 2,661 AUMs for wildlife and 64,840 AUMs for livestock. This allocation level would result in 16 allotments being stocked below present levels, seven allotments remaining unchanged, and 53 allotments being stocked at higher levels. The initial livestock allocation is 43 percent above grazing preference, 19 percent above the six-year average. Present wildlife needs would be met, but only 3,294 AUMs would be allocated over the long term, resulting in a 1,111 AUM shortfall in satisfying the needs of future mule deer populations. The long-term livestock allocation would be 92,133 AUMs with new range improvements and maintenance providing the additional AUMs. This level is 103 percent above preference and 69 percent above average use. Three allotments would continue to be stocked below present levels.

The same grazing systems incorporating the same treatments as in the Proposed Action would be implemented as follows: rest-rotation on 19 allotments (61,806 acres), deferred rotation on 35 allotments (152,340 acres), seasonal use on 13 allotments (2,834 acres), and custodial use on 11 allotments (6,362). Again, existing AMPs would continue in force and new AMPs/IRPs would be developed as necessary.

In order to provide the additional forage needed to meet the long-term allocation, the following range improvements and land treatment maintenance would be completed:

Water Troughs	- 36	Wells	- 2
Fences	- 18.5 mi.	Plow and Drill Seed	- 638 ac.
Pipelines	- 29.0 mi.	Rail and Aerial Seed	- 280 ac.
Spring Developments	- 3	Burn and Drill Seed	- 15,115 ac.
Reservoirs	- 7	Spray and Drill Seed	- 12,108 ac.
Cattleguards	- 15	Spray	- 20,209 ac.
Pumping Stations	- 2	Drill Seed	- 600 ac.
Storage Tanks	- 2		

Seeding Maintenance:

Burning	-	22,027 ac.
Spraying	-	13,269 ac.
Railing	-	294 ac.

Alternative C - Existing Stocking Level. Under this alternative the initial and long-term forage allocation would be the current six-year average use of 54,472 AUMs plus 283 AUMs on two new allotments (would be created under all alternatives except Alternative E) for a total livestock allocation of 54,755 AUMs. With the exception of the two new allotments, the current stocking level on all allotments would be maintained. This allocation is 21 percent above grazing preference. Initially, 2,661 AUMs would be allocated for big game with this increasing to 4,405 AUMs over the long term. This allocation provides for the needs of present and projected big game populations as developed by IDFG.

The same grazing systems and treatments would be employed as in previous alternatives. No change from current management would be made with 15 allotments (54,828 acres) under rest-rotation, 20 allotments (49,638 acres) under deferred rotation, 32 allotments (112,474 acres) under seasonal use, and 11 allotments (6,362 acres), including the two new allotments, under custodial use. Existing AMPs would continue to be implemented and updated as necessary, but no new AMPs/IRPs would be developed or implemented.

In order to continue vegetative production at current levels, land treatment maintenance as identified in Alternative A would be completed. This would ensure that current stocking levels are maintained. Other range developments would be maintained in usable condition. No new project work would be undertaken.

Alternative D - Reduced Livestock Use. The initial and long-term forage allocation for livestock use would be 34,783 AUMs (23 percent below grazing preference, 36 percent below the six-year average licensed use level). Several factors which would benefit wildlife, watershed, and other resources were incorporated into this alternative, thus resulting in the reduced allocation for livestock. The initial allocation for wildlife would be 4,405 AUMs which would satisfy the needs of present as well as future populations.

Grazing management would be the same as under Alternative C. Changes in period of use would occur on ten allotments, benefiting wildlife by eliminating early spring livestock grazing.

No range improvements or land treatment maintenance would be undertaken. Wildlife and watershed projects would be developed to improve riparian vegetation and wildlife habitat. The following projects would be included:

Fences	- 25.05 mi.	Big Game Guzzlers	- 3
Pipelines	- 0.75 mi.	Bird Guzzlers	- 11
Potholes	- 2		

Alternative E - No Livestock Grazing. All livestock grazing on public lands administered by the BLM would be terminated. All grazing permits and AMPs would be cancelled. All public land in the EIS area would be unallotted. The only forage allocation for consumptive use would be 4,405 AUMs for big game which would satisfy present as well as future needs.

Existing range developments and land treatments would be maintained only if beneficial for non-livestock uses. No new range development would be undertaken unless necessary for non-livestock programs.

ENVIRONMENTAL CONSEQUENCES

The Proposed Action, Existing Stocking Level, and Reduced Livestock Use alternatives were found to be generally beneficial to the various resource

values, though some adverse affects were present under each. The increased Livestock Use alternative would have the greatest adverse affects on other resource values because of the significantly higher forage allocation and higher level of range improvement work required to produce the forage. The impacts of the No Livestock Grazing alternative would be mixed with significantly adverse affects on economic and social values and generally beneficial affects on other resources.

Consequences of the Proposed Action Alternative. Soil erosion on 71 percent of the allotment acreage would decrease, while it would increase on only two percent. Estimated sheet erosion rates would drop from .69 tons/acre/year (T/A/Y) to .56 T/A/Y. Watershed cover (combined vegetation and litter) of 60 percent or more would increase from 64 percent to 76 percent. Minimal localized improvment in water quality would result from this alternative.

Long-term vegetative production is expected to increase by 19 percent in the EIS area. Range condition and trend would improve significantly. Overall, vegetative cover would improve slightly (from 43 percent to 44 percent). Seven percent of the riparian vegetation would improve because of fencing, but the remaining areas would not show any improvement (70 percent is presently in fair or poor condition).

Big game forage requirements would be met over both the short and long term, but conflicts would still occur from grazing on critical mule deer winter range (82 percent) and summer range (86 percent), and spring grazing on antelope habitat (100 percent). All species would benefit from the additional water developments. Improved cover and increased forage would benefit most species (7 percent decrease in forage allocation on critical sage grouse habitat). Increased grazing, particularly in the spring, would adversely affect ground-nesting birds including two sensitive species - the long-billed curlew and the burrowing owl. Forty percent of the critical mule deer range would be grazed under seasonal use. Land treatments, in general, would result in short-term adverse affects but in the long term would be beneficial. Fisheries and aquatic species would be adversely affected or show only slight improvement over present conditions, primarily because of little improvement in present riparian habitat condition.

No change would occur in projected recreation visitor days for fishing or big game hunting, but a ten percent increase would occur in upland game hunting. No changes in visual resource management (VRM) classes would be expected. Of the known cultural sites, 91 percent would be adversely affected due to increased livestock numbers.

Ranch income changes over the long term would amount to +$158,000. Net present worth of regional income changes would be +$1.5 million. Long term employment would increase by 11 jobs as a result of the Proposed Action. The ranching community would have a strengthened feeling of social well being.

Consequences of the Increased Livestock Use Alternative. Increased soil erosion is projected for 34 percent of the allotted acreage with rates declining on only 25 percent. Estimated sheet erosion rates would increase by .04 T/A/Y over the present rates - to .73 T/A/Y. Areas with sufficient recommended watershed cover would drop from 64 percent to 49 percent of the allotted area. Significant deterioration in water quality and in watershed condition near perennial streams would occur.

Vegetative production over the long term would increase by 34 percent. Significant improvement in range condition and trend would result under this alternative. There would be no change in overall vegetative cover. Riparian vegtation would decline in condition. Two sensitive and one proposed threatened plant species would be adversely affected.

A shortage of 1,111 AUMs for mule deer would occur over the long term. Livestock utilization of shrubs on critical mule deer winter range would be above 20 percent resulting in declining carrying capacity for deer in these areas. Late fall and early spring grazing would continue on critical mule deer range and on antelope range as under the Proposed Action. Seasonal use would continue on less than one percent of the critical range. Ground-nesting birds would be more susceptible to nest desertion and trampling. Waterfowl, furbearers, fisheries, and other riparian species would be adversely affected by further deterioration of riparian vegetation and water quality. Critical sage grouse habitat would be adversely affected by a 15 percent increase in the vegetative allocation to livestock. Land treatments would occur on 45 percent of critical mule deer winter range, 66 percent of critical mule deer summer range, and 36 percent of critical sage grouse nesting/brood-rearing habitat resulting in long-term adverse affects. Proposed water developments would benefit most species.

A decrease in projected recreation visitor days would occur for fishing (10 percent), upland game hunting (10 percent), and mule deer hunting (20 percent). There would be moderate impacts on visual resources with 1,621 acres of Class II and 2,434 acres of Class III being lowered one VRM class. Increased livestock numbers would adversely affect 94 percent of the known cultural sites.

Long-term ranch income changes would amount to +$321,000. The net present worth of changes in regional income would be +$2.8 million. An additional 22 jobs would be added to the job market over the long term. A strengthened feeling of social well being would be felt by the ranching community.

Consequences of the Existing Stocking Level Alternative. The rate of soil erosion would decrease on 51 percent of the allotted acreage and increase on three percent. Estimated sheet erosion rates for the area would fall to .64 T/A/Y while acreage with recommeded watershed cover would increase from 64 to 74 percent of the area. Water quality and watershed condition near perennial waters would not change from the current status.

A ten percent increase in vegetative production would occur over the long term. Improvement in range condition and trend would occur, but it would be considerably less than in Alternative A or B. Vegetative cover would not change from the present percentage of 43. Riparian vegetation would not change in condition with 70 percent remaining in the fair or poor class.

Forage requirements for big game would be met, though late fall and early spring grazing would continue to suppress forage production on 82 percent of the critical mule deer winter range, 86 percent of the critical mule deer summer range, and all antelope range. Seasonal grazing use would continue on 71 percent of the critical mule deer range. Current upland game populations would be maintained, but adverse impacts such as nest desertion and trampling presently occurring, would continue. Riparian areas would continue to be heavily grazed, resulting in no change or minor adverse impacts on associated species - waterfowl, furbearers, fisheries, river otter. Minor adverse impacts on big game and upland game would result from land treatment maintenance.

Recreation visitor day projections would remain static. No change would occur in visual resource management classes. The present downward trend in condition on 94 percent of known cultural resources sites would continue.

There would be no change in rancher incomes under this alternative. The net present worth of changes in regional income would be +$89,000. No jobs would be added to the employment section over the long term. Ranchers would have a strengthened feeling of social well being.

Consequences of the Reduced Livestock Use Alternative. Soil erosion rates would decrease on 85 percent of the EIS area and increase on one percent. Estimated sheet erosion rates would decrease by .19 T/A/Y with the overall rate projected at .50 T/A/Y. Areas with sufficient watershed cover (60 percent or more) would increase from 64 percent of the area to 80 percent. Some improvement in water quality and in watershed condition near perennial streams would occur.

Only a two percent increase in vegetative production would occur because no new land treatment or treatment maintenance would be done. Trend and condition on native range would improve significantly, but they would decline on seedings. A three percent increase (to 46 percent) in vegetative cover would result under this alternative. Riparian vegetation would improve, significantly on the 43 percent being fenced, and minimally on the remaining 57 percent.

Big game forage requirements would be met. Changes in period of use would benefit all antelope range and 90 percent of the critical mule deer summer range. Seasonal use would continue as under the existing situation. Reduced livestock numbers would result in improved habitat for upland game though the lack of land treatments and maintenance would cause some loss of sage grouse because of sagebrush stands becoming dense and overgrown. A 36 percent reduction in allocation would occur on critical sage grouse habitat. Riparian habitat would improve for upland game, waterfowl, fisheries, and other associated species where fencing occurs, but would show only minor improvement in other areas. Wildlife projects would benefit all species.

An increase in projected recreation visitor days would occur under this alternative: fishing (five percent), upland game hunting (15 percent), and mule deer hunting (ten percent). No changes in VRM classes would be expected. Present downward trend in condition of cultural resources would continue, but reduced livestock use would slow the rate on 94 percent of the known sites.

Long-term ranch income changes would amount to -$187,000. Changes in regional income would result in a net present worth loss of -$2.1 million. A loss of 11 jobs would occur over the long term. The ranching community would feel a reduced sense of social well being.

Consequences of the No Livestock Grazing Alternative. Under this alternative, the potential soil erosion rate would decrease on 91 percent of the allotted acreage with no areas showing an increase. Estimated sheet erosion rates would drop from .69 T/A/Y to .64 T/A/Y. Watershed cover of 60 percent or more would occur on 82 percent of the EIS area, up from the present 64 percent figure. Water quality would improve significantly, as would watershed conditions near perennial streams.

Vegetative production would increase by two percent, the same as under the Reduced Livestock Use alternative. Range condition and trend would improve significantly on native range, decline significantly on seeded range. Vegetative cover would increase to 46 percent (up four percent). All riparian vegetation would improve significantly because of the removal of livestock.

Mule deer and antelope forage requirements would be met. All livestock-related conflicts (forage utilization, nest trampling) would be eliminated. Improved riparian habitat and water quality would benefit fisheries, waterfowl, furbearers, and other species which utilize these areas. Initially, population increases would be expected for most species. Over the long term, though, some species would decline in population because of various habitats becoming overgrown and choked with dense vegetation. This results in less productive habitat and less desirable nesting sites (for waterfowl, long-billed curlews, western burrowing owls).

Increases of ten percent in fishing, five percent in upland game hunting, and five percent in mule deer hunting would occur in recreation visitor day numbers. More visual diversity and contrast would result under this alternative, but no VRM class changes are anticipated. No livestock-related impacts on cultural resource sites would occur.

Rancher income, over the long term, would be -$540,000. Net present worth changes in regional income would be -$6.4 million. Thirty-five jobs would be lost over the long term. A reduced sense of social well being would occur in the ranching community with many ranchers having to seek outside employment to subsidize income, consolidate, or sell.

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CHAPTER 1

PURPOSE AND NEED

This environmental impact statement (EIS) analyzes the effects of livestock grazing on 231,298 acres of public land administered by the Bureau of Land Management, Burley District. It is prepared in compliance with the National Environmental Policy Act and in specific response to litigation in U.S. District Court, for the District of Columbia, entitled Natural Resources Defense Council, Inc. et al. v. Rogers C.B. Morton et al., Case #1983-73.

More practically, this document serves as an analytic instrument which will be used in deciding a course of action affecting certain rangelands in south central Idaho. The decision evolving from this study will determine final vegetation allocations among livestock, wildlife and non-consumptive uses such as watershed and aesthetics.

The Twin Falls EIS is being prepared between the recommendation and decision phases in the Burley District's land-use planning process. That process has included detailed resource inventories, program development and conflict analysis. It has also included contracted surveys of threatened or endangered plant and animal species and a *scoping process** involving other federal agencies, State and local governments, special interest groups, and the general public. Consutltation with the U. S. Fish and Wildlife Service with respect to endangered species in the EIS area is presently under way. As a result of these coordinated efforts, some specific resource problems related to livestock grazing have been identified. The purpose of the EIS is to assess these problems and alternative strategies for resolving them.

The contribution of the general public to the overall planning effort has been considerable. Grazing associations and ad hoc committees representing various interest groups and government agencies were consulted at regular intervals throughout the land-use planning process. Public meetings were held in connection with multiple use recommendations for the Twin Falls Planning Area. Open meetings were held in Twin Falls on March 31 and May 13, 1981 and in Buhl on April 1, 1981. A handout summarizing tentative land-use recommendations, including allocation of forage among competing uses, was distributed at each meeting. Local BLM representatives briefly discussed the rationale for each recommendation. As each component was presented, the

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**Italicized terms are defined in the Glossary.*

meeting ground rules called for questions from the audience, or statements of support or dissent. If someone dissented, he or she was invited to present an alternative proposal with supporting rationale. All comments and suggestions were considered before finalizing the multiple use recommendations.

As the time for preparing an environmental impact statement drew near, public participation was intensified. An EIS scoping meeting was held May 13, 1981 at the College of Southern Idaho, Twin Falls. A "Scoping Process" Notice of Intent was published in the April 24, 1981 Federal Register. The notice presented specific components of the Proposed Action and gave a short description of suggested alternatives to the proposal. Comments were solicited on additonal alternatives to be considered and critical issues to be addressed in the EIS. In addition to the Federal Register notice, agencies and individuals were notified about the scoping meeting via phone calls, letters, and news releases.

In addition, a survey requesting public comment and input on the significant issues to be addressed in both the Twin Falls EIS and final land-use decisions (MFP III) was sent to 465 individuals concerned with public land management in the Twin Falls area. This survey identified 21 specific issues, asked for these to be rated by importance, and requested any additional issues of concern to specific individuals.

Through these and other contacts, BLM personnel in the Burley District have made every effort to inform and involve all groups, organizations and individuals who might be affected by land-use decisions in the Twin Falls EIS area. The selection of alternatives to be considered and issues for detailed analysis was based directly on public input received during the planning and EIS scoping processes.

Issues identified as generating significant interest include:

1. Is grazing an acceptable land use practice and, if so, at what level?
2. What would result, environmentally and economically, if land in the Berger area was converted from rangeland to irrigated farmland?
3. Of the proposed alternatives, which would yield greater habitat diversity for wildlife species in the EIS area?
4. Should economic activity be given priority over non-economic activity where public lands are concerned?

As will be seen in the following chapter, each management alternative developed for analysis represents a restatement of, or an answer to, one or more of these four central issues.

CHAPTER 2

ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter defines and evaluates each alternative and concludes with a tabular comparison of projected impacts. Five alternatives are presented for consideration, the essentials of which are summarized in Table 2-1.

ALTERNATIVE A
PROPOSED ACTION
(PREFERRED ALTERNATIVE)

The Proposed Action (Preferred Alternative) is designed to implement an improved rangeland management program on 75[1] existing allotments and two new allotments totaling 223,342 acres of public land in the Twin Falls EIS area. Land status and acreage for each allotment are provided in Table 2-2, and locations are shown on Map 2-1.

If approved, the Proposed Action would be implemented over a period of seven years. An initial forage allocation totaling 57,416 *Animal Unit Months** AUMs would be achieved by adjusting livestock numbers, seasons of use, or a combination of both over a period of four years, the last year projected as being the 1986 grazing season. Proposed range improvements and maintenance on existing seedings would be completed on a staggered basis between 1983 and 1989, as funding permits. The additional forage resulting from new range improvements and from maintenance of existing land treatments would be allocated as it became available. Stocking levels, periods of use, and range developments would be coordinated with the livestock operators.

---

1 *There are 75 allotments presently designated in the Twin Falls EIS area, but one of these (Whiskey Creek Buffer) is used only as a buffer pasture and is included in the unallotted acreage.*

* *Italicized terms are defined in the Glossary.*

TABLE 2-1
SUMMARY OF ALTERNATIVES

	Proposed Action Alternative A	Increased Livestock Use Alternative B	Existing Stocking Level Alternative C	Reduced Livestock Use Alternative D	No Livestock Grazing Alternative E
VEGETATIVE ALLOCATION					
AUMs (initial/long-term) To Livestock	57,416/73,550	64,840/92,133	54,755/54,755	34,783/34,783	0/0
To Wildlife	2,661/4,405	2,661/3,294	2,661/4,405	4,405/4,405	4,405/4,405
To Non-Consumptive Uses	130,196/149,256	122,772/158,706	132,857/151,058	151,085/154,283	185,868/189,066
GRAZING MANAGEMENT					
Number of Allotments	77[1]	77[1]	77[1]	77[1]	0
Systems (Acres) Rest-Rotation	60,138	61,806	54,828	52,708	0
Deferred Rotation	128,025	152,340	49,638	49,638	0
Seasnnal Use	27,439	2,834	112,474	112,474	0
Custodial	7,740	6,362	6,362	6,362	0
Unallotted	7,956	7,956	7,996	7,996	231,298
Grazing Treatments (Acres)					
Early Livestock Grazing (Prior to seedripe)	120,237	107,934	130,162	130,162	0
Livestock Grazing (After seedripe)	89,077	101,380	80,759	80,759	0
Yearlong Rest From Livestock Grazing	21,984	21,984	20,377	20,377	231,298
RANGE DEVELOPMENTS (including Wildlife & Watershed)					
New Projects Cattleguards (no.)	15	15	- -	- -	- -
Water Troughs (no.)	30	36	- -	- -	- -
Fences (mi.)	24.80	18.50	- -	25.50	- -
Pipelines (mi.)	26.50	28.25	- -	.75	- -
Spring Oevelopments (no.)	2	3	- -	- -	- -
Reserviors (no.)	6	7	- -	- -	- -
Pumping Stations (no.)	1	2	- -	- -	- -
Guzzlers (no.)	14	- -	- -	14	- -
Potholes (no.)	2	- -	- -	2	- -
Storage Tank (no.)	- -	2	- -	- -	- -
Wells (no.)	- -	2	- -	- -	- -
Land Treatments Burn & Orill Seed (acres)	5,364	15,115	- -	- -	- -
Spray & Drill Seed (acres)	4,011	12,108	- -	- -	- -
Spray (acres)	3,603	20,209	- -	- -	- -
Rail & Aerial Seed (acres)	150	280	- -	- -	- -
Plow and Drill Seed (acres)	416	638	- -	- -	- -
Orill Seed (acres)	- -	600	- -	- -	- -
Land Treatment Maintenance Burning	21,812	22,027	21,812	- -	- -
Spraying	10,848	13,269	10,848	- -	- -
Railing	294	294	294	- -	- -

1 There are 75 allotments under present management, but one of these (Whiskey Creek Buffer Pasture) is being considered as unallotted because it is used only as a buffer area. Two new allotments would be created under all Alternatives A, B, C, and O in order to better facilitate grazing management in the EIS area.

Grazing management systems would be incorporated, when necessary, into new or revised Allotment Management Plans (AMPs) or Integrated Ranch Plans (IRPs). These plans would be developed in cooperation with the livestock operators, Idaho Department of Fish and Game (IDFG), Idaho Department of Lands (IDL), U.S. Forest Service (USFS), Soil Conservation Service (SCS), private ranchers, and other interested parties, as well as landowners within the allotments.

The overall objective of the Proposed Action is to prevent deterioration of soil, vegetation, and related resources by allocating forage among competing uses, while maintaining or enhancing the social and economic status quo. As a means for achieving this objective, forage would be allocated in accordance with inventoried rangeland carrying capacities. Range improvements (including land treatments and maintenance) would be undertaken on a site specific basis to increase the supply of available forage. Grazing systems would be initiated in order to more efficiently use that forage in improving vegetation and watershed condition. Forage not allocated for livestock and wildlife would be available for non-consumptive uses.

TABLE 2-2
LAND STATUS AND ACREAGE

Allotment	Ownership (Acres) Public	State	Private	Total Acreage
Babcock-Berger	607			607
Buhl Group-Berger	4,465			4,465
Kerr-Berger	2,229			2,229
Ellis/Tews-Berger	9,728		40	9,768
Chadwick-Berger	1,360			1,360
Koch-Berger	948			948
Kaster-Berger	1,510			1,510
Kunkel-Berger	1,516			1,516
Lassen-Berger	640			640
Lierman-Berger	720			720
M. Lierman-Berger	640			640
Lierman/Wegener-Berger	2,044			2,044
Lanting-Berger	3,233			3,233
Martens-Berger	839			839
Noh-Berger	5,105			5,105
Parrott-Berger	1,478		430	1,908
PVGA-Berger	7,389		640	8,029
Schnitker-Berger	400		160	560
Smith-Berger	320			320
Wrigley-Berger	1,955		63	2,018
Skeem-Berger	316			316
J.E.Baker-Deep Creek	3,339	640		3,979
J.E.Baker-Lost Creek	2,598	640	2,869	6,107
Western Stockgrowers	23,505	1,280	268	25,053
Point Ranch	33,453	1,907	819	36,179
Whiskey Creek	18,719	640	34	19,393
Moore-Lost Creek	80		82	162
North Big Creek	1,011			1,011
Kerr-Lost Creek	6,666	640	8,002	15,308
Noh-White Rock	1,597		38	1,635
Noh-Sections	1,455		2,662	4,117
Mule Creek-PVGA	7,014	804	2,482	10,300
Horse Creek-PVGA	3,322	154	3,887	7,363
Frahm-PVGA	696		3,268	3,964
South Mule Creek	3,018	31	85	3,134
Griff	2,244		240	2,484
Peters	1,213		39	1,252
Rock Creek-Coiner	159			159
Courtnay	311		4	315
Hub Butte-WSGA	4,268		16	4,284
Salmon Tract Iso. (Danos)[1]	40			40
Hub Butte-Davis	800			800
Fuller	1,070			1,070
Greene Private	321		141	462
Salmon Tract-Stewart	46		146	192
Soldier Creek	284		207	491
Barton-Schutte	611		10	621
Jones-Goat Spring	1,386		45	1,431
Kinsey-Lost Creek	317		722	1,039
West Kunkel	1,517			1,517
Amsterdam-Kunkel	1,100			1,100
Loughmiller	1,675		200	1,875
Salmon Tract Ind.	40		14	54
Lilly Grade	1,644		36	1,680
Salmon Tract-McCoy	35			35
South Big Creek	1,549		812	2,361
Randall Iso.	106			106
Lemmon-Ring	252			252
Cameron	1,378		1,388	2,766
Schnell-Salmon Tract	15,121	640	6,686	22,447
Magic Common	9,168	641	464	10,273
Sharp-Lost Creek	1,002		3,984	4,986
Salmon Tract Iso. (Stewart)	280			280
Lost Creek-U2	2,037		2,136	4,173
Salmon Tract-U2	315		64	379
Squaw Joe	8,213		489	8,702
Ridge	7,633	69	1,003	8,705
Gravel Pit-Salmon Tract	700			700
Section 22-Salmon Tract	160			160
Highway Unit	120			120
East Kunkel	280			280
Highway-Kunkel	447			447
Kunkel Iso.	315			315
Hot Creek	158		319	477
Tews Iso.	752			752
Big Creek Iso.	320			320
Totals	223,302	8,086	44,994	276,382

7,996 acres of public land in the Twin Falls EIS area is considered as unallotted acreage.[2]

231,298 total acres of public land in the Twin Falls EIS area

1 Under Alternatives A and B, an additional 40 acres of public land would be included as part of this allotment.

2 Included in the unallotted acreage is 953 acres in three buffer pastures, 1,720 acres east of Rock Creek in two allotments (Artesian Kidd and Dry Creek) which are located primarily in Cassia County and will be analyzed in the EIS for the Cassia Resource Management Plan, 2,304 acres in stock driveways which are not fenced into allotments, and 3,019 acres in isolated parcels.

Specific objectives of the Proposed Action are to:

- -- Balance forage demand with existing vegetative production considered available for consumption;
- -- Perpetuate good or excellent range condition on 97,465 acres and reduce the acreage (125,837 acres) presently in fair or poor condition by 40 percent or more;
- -- Maintain static or upward range trend on 170,990 acres and reduce the acreage (52,312 acres) presently in a declining trend by 50 percent or more;
- -- Improve overall watershed conditions by restoring, maintaining, or improving soil productivity and surface and ground water quality;
- -- Allocate forage to meet IDFG/BLM 1990 big game population projections;
- -- Maintain and/or improve vegetation condition on 485 acres of wetland *riparian* habitat;
- -- Preserve and enhance game and non-game wildlife habitats and populations--upland game, waterfowl, fish, etc.
- -- Maintain or improve overall aesthetic quality;
- -- Protect 138 identified cultural resource sites and any additional sites found during project clearance or construction;
- -- Protect and provide for the identified needs of threatened, endangered, and sensitive plant and animal species;
- -- Develop and implement livestock grazing systems to satisfy the physiological needs of the desired plant species.

VEGETATIVE ALLOCATION. The proposed vegetative allocations for consumptive uses were developed with the intention of supporting a variety of public values on a sustained yield basis. At the same time, they are to provide for physiological requirements of range vegetation so public rangelands are maintained in a healthy, vigorous, and productive condition.

First, the total vegetative biomass produced annually on public lands in the EIS area was calculated to be 190,827 AUMs based on data from the *Soil-Vegetation Inventory Method* (SVIM). After total forage (vegetation palatable to grazing animals) was determined, other factors further reduced the amount allocable for grazing. Factors determining plant usefulness, in terms of physiological growth requirements as well as animal dietary preference, were applied along with consideration of *suitability,* long-term actual use, *trend,* and *utilization* to determine the maximum amount of forage available for livestock. In cases where actual use, trend, and utilization were unavailable, the SVIM results were the determining factors. The following list of allowable use levels (percent of growth which can be removed without detrimentally affecting plant growth) is appropriate for all alternatives:

	Spring	Summer	Fall/Winter
Crested Wheatgrass	50%	50%	60%
Cheatgrass	50%	20%	30%
Other grasses	30%	40%	50%
All Forbs	25%	25%	25%
All Shrubs	30%	30%	30%

The present and proposed level of vegetative allocation for livestock and wildlife for all allotments is shown in Table 2-3. The initial allocation of 2,661 AUMs to big game was determined by considering existing populations of deer and antelope and by analyzing SVIM data reflecting plant usefulness and

TABLE 2-3

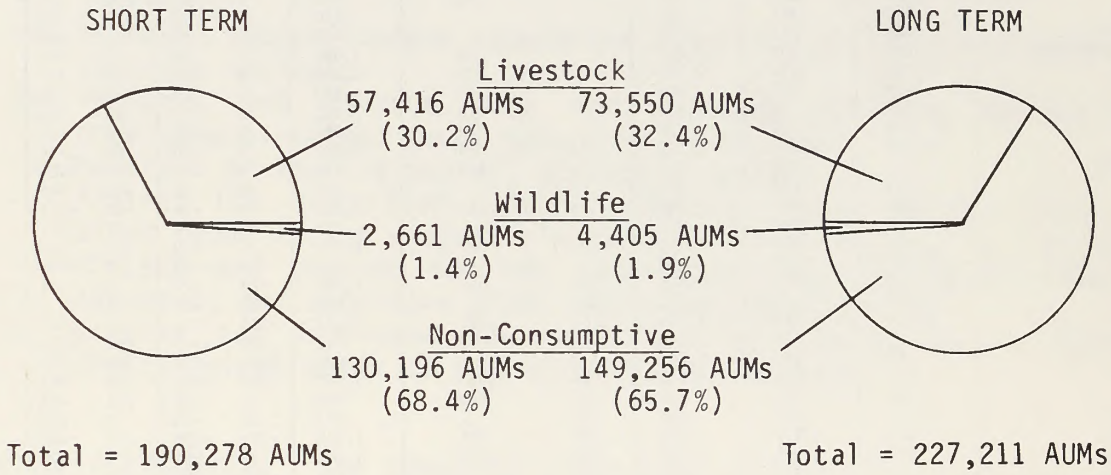
PROPOSED FORAGE ALLOCATION - ALTERNATIVE A

Allotment	Authorized Livestock AUMs	6 Year Average Licensed Use	Proposed Livestock Grazing Use: Short-Term Initial Forage Allocation	Additional AUMs Available From: New Projects	Additional AUMs Available From: Maintenance	Long-Term Total AUMs Available	Proposed Livestock Adjustments(%): From Authorized Use: Short Term	From Authorized Use: Long Term	From 6-Year Average: Short Term	From 6-Year Average: Long Term	Proposed Wildlife Use (AUMs): Initial	Proposed Wildlife Use (AUMs): Long Term
Babcock-Berger	420	336	420		79	499	0	+19	+25	+49		
Buhl Group-Berger	1,904	1,290	1,904	80	449	2,433	0	+28	+48	+89		
Kerr-Berger	1,500	1,285	1,500		485	1,985	0	+32	+17	+54		
Ellis/Tews-Berger	5,000	4,357	5,000		1,196	6,196	0	+24	+15	+42		
Chadwick-Berger	900	889	900		50	950	0	+6	+ 1	+ 7		
Koch-Berger	660	506	660		34	694	0	+5	+30	+37		
Kaster-Berger	910	670	910		124	1,034	0	+14	+36	+54		
Kunkel-Berger	825	733	825		80	905	0	+10	+13	+23		
Lassen-Berger	420	324	420		25	445	0	+6	+30	+37		
Lierman-Berger	420	340	420			420	0	+0	+24	+24		
M. Lierman-Berger	425	283	425			425	0	+0	+50	+50		
Lierman/Wegener-Berger	1,050	908	1,050		46	1,096	0	+4	+17	+21		
Lanting-Berger	2,000	1,434	2,000		253	2,253	0	+13	30	+57		
Martens-Berger	400	357	400		50	450	0	+13	+12	+26		
Noh-Berger	3,223	2,734	3,223		210	3,433	0	+7	+19	+26		
Parrott-Berger	798	789	798		252	1,050	0	+32	+ 1	+33		
PVGA-Berger	3,520	2,750	3,520	113	594	4,227	0	+20	+28	+54		
Schnitker-Berger	217	153	217		120	337	0	+55	+42	+120		
Smith-Berger	210	144	210			210	0	+0	+46	+46		
Wrigley-Berger	945	573	945		341	1,286	0	+36	+65	+124		
Skeem-Berger	215	164	215			215	0	+0	+31	+31		
J. E. Baker-Deep Creek	619	953	741		362	1,103	+15	+78	-23	+16		
J. E. Baker-Lost Creek	296	353	353		356	709	+19	+140	0	+201	43	46
Western Stockgrowers	2,114	2,600	2,600	850	301	3,751	+23	+77	0	+44	1,544	2,977
Point Ranch	3,580	4,221	4,221	374		4,595	+18	+28	0	+ 9	127	217
Whiskey Creek	1,976	4,209	4,209	1,157	811	6,177	+113	+213	0	+47		9
Moore-Lost Creek	20	20	30		12	42	+50	+110	+50	+110	5	5
North Big Creek	40	160	282			282	+605	+605	+76	+76	20	23
Kerr-Lost Creek	627	2,379	1,683	316	1,063	3,062	+168	+388	-29	+29	12	18
Noh-White Rock	333	253	333	15	104	452	0	+36	+32	+79	19	27
Noh-Sections	220	291	291	28		319	+32	+45	0	+10	48	55
Mule Creek-PVGA	430	1,177	1,326	139	281	1,746	+208	+306	+13	+48	72	96
Horse Creek-PVGA	637	1,015	746	20	277	1,043	+17	+64	-27	+ 3	40	51
Frahm-PVGA	36	157	143			143	+297	+297	- 9	- 9	39	39
South Mule Creek	226	257	257	176	26	459	+14	+103	0	+79	59	76
Griff	592	1,280	1,280			1,280	+116	+116	0	0		
Peters	298	405	405	96		501	+36	+68	0	+24		
Rock Creek-Coiner	50	50	50			50	0	0	0	0		
Courtnay	68	102	102			102	+50	+50	0	0		
Hub Butte-WSGA	576	1,142	1,142	50	561	1,753	+98	+204	0	+54		
Salmon Tract Iso. (Oanos)	10	8	10			10	0	0	+25	+25		
Hub Butte Oavis	180	196	156	16	129	301	-13	+67	-20	+54		
Fuller	354	353	300	21	265	586	-15	+66	-15	+65		
Greene Private	48	48	118			118	+146	+146	+146	+146	19	30
Salmon Tract-Stewart	4	6	5			5	+25	+25	-17	-17		
Soldier Creek	22	49	34	12		46	+55	+109	-31	- 6	10	14
Barton-Schutte	121	312	312	51		363	+158	+200	0	+16		
Jones-Goat Spring	66	478	441		263	704	+568	+1,067	- 8	+47		
Kinsey-Lost Creek	50	40	40			40	-20	-20	0	0	5	5
West Kunkel	151	690	690		150	840	+357	+456	0	+22		
Amsterdam-Kunkel	46	142	142			142	+209	+209	0	0		
Loughmiller	255	610	610			610	+139	+139	0	0		
Salmon Tract Ind.	10	10	14			14	+40	+40	+40	+40		
Lilly Grade	330	266	227	13	218	458	-31	+39	-15	+72		
Salmon Tract-McCoy	5	5	16			16	+220	+220	+220	+220		
South Big Creek	65	65	246	130		376	+278	+478	+278	+478	7	7
Randall Iso.	30	31	10			10	-67	-67	-68	-68		
Lemmon-Ring	30	24	30			30	0	0	+25	+25	15	19
Cameron	235	188	160			160	-32	-32	-15	-15	50	50
Schnell-Salmon Tract	1,535	4,633	3,526	1,062	92	4,680	+130	+205	-24	+ 1	28	39
Magic Common	480	723	723	668		1,391	+51	+190	0	+92	54	83
Sharp-Lost Creek	120	378	319	15	110	444	+166	+270	-16	+17	35	53
Salmon Tract Iso. (Stewart)	50	50	24	38		62	-52	+24	-52	+24		
Lost Creek-U2	380	381	335	100		435	-12	+14	-12	+14	110	148
Salmon Tract-U2	30	49	72			72	+140	+140	+47	+47		
Squaw Joe	476	898	577	208	188	973	+21	+104	-36	+ 8	68	86
Squaw Joe Iso.	204	240	240			240	+18	+18	0	0		
Ridge	999	882	999	206		1,205	0	+21	+13	+37	222	222
Ridge Iso.	126	126	126			126	0	0	0	0		
Gravel Pit-Salmon Tract	170	153	170	84		254	0	+49	+11	+66		
Section 22-Salmon Tract	40	44	40			40	0	0	- 9	- 9		
Highway Unit	11	18	16			16	+45	+45	-11	-11		
East Kunkel	13	92	13		48	61	0	+369	-86	-34		
Highway-Kunkel	16	86	65	91		56	+306	+875	-24	+81		
Kunkel Iso.	30	108	77			77	+157	+157	-29	-29		
Hot Creek	0	47	94			94	--	--	+100	+100	10	10
Tews Iso.	0	0	194			194	--	--	--	--		
Big Creek Iso.	0	0	89			89	--	--	--	--		
TOTALS	45,392	54,472	57,416	6,129	10,005[1]	73,550	+26	+62	+ 5	+34	2,661	4,405

[1] An increase of 161 AUMs would result from maintenance of an existing land treatment on the Whiskey Creek Buffer Pasture. (10,166 AUMs total increase from maintenance.)

dietary preference of the wildlife species. The proposed future allocation of 4,405 AUMs for big game was based on Idaho Department of Fish and Game projections for 1990. The proposed grazing use includes an initial vegetative allocation of 57,416 AUMs apportioned according to previously established grazing privileges and analysis of aforementioned data. An additional 16,134 AUMs would accrue through implementation of new range improvements (6,129 AUMs) and maintenance of existing land treatments (10,005 AUMs). A total of 73,550 AUMs would be allocated for livestock after new projects and maintenance is completed.

The initial and long-term vegetative allocation among consumptive and non-consumptive uses would be as follows:



GRAZING MANAGEMENT. Livestock are selective toward plant species and areas grazed. More palatable plants and the most accessible areas incur initial and heaviest grazing. Plants grazed heavily one year are usually heavily grazed the following year, leading to their gradual destruction. The same trend applies to preferred areas. As forage production of desirable plants falls below animal needs, livestock begin grazing less desirable species and/or areas. This leads to an ever increasing area of range deterioration under unmanaged continuous use (Stoddart and Smith 1955; Hormay 1970). Grazing systems are implemented to regulate livestock use to improve the quality and quantity of desired vegetation, to alleviate a particular problem, or to enhance multiple use values.

The harmful effects of selective grazing of preferred plants can be reduced by resting the range at appropriate intervals. An allotment is usually fenced into pastures to facilitate controlled pasture resting. A grazing formula is tailored for each allotment; the number of pastures and the levels and seasons of grazing and resting are based on key forage physiological needs, existing range condition, and potential for improvement. Though some increased vegetative production would occur from implementing the proposed grazing system, no additional AUMs would be allocated for consumptive use. Rather, systems would be utilized to improve range condition and watershed condition of streams not presently meeting water quality standards.

Seventy-five allotments are presently managed for livestock grazing in the Twin Falls EIS area. Two new allotments would be created under the Proposed Action (and under Alternative B, C, and D). These new allotments would allow for better livestock management practices to be initiated on certain public lands in the EIS area.

Systems. The proposal for the EIS area involves four primary grazing systems: rest-rotation (60,138 acres), deferred rotation (128,025 acres), custodial (7,740 acres), and seasonal use (27,439 acres). The present and proposed grazing systems, *treatments,* and periods of use are shown in Table 2-4. (Detailed grazing system descriptions and the basic management premise of the systems are discussed in Appendix A.)

Rest-rotation systems include 80 acres in one allotment under two-treatment and 60,058 acres in 18 allotments under three-treatment grazing.

The deferred rotation proposal calls for 20,287 acres in nine allotments under two-treatment and 107,738 acres in 23 allotments under three-treatment grazing.

Seasonal use is proposed for 15 allotments totaling 27,439 acres.

Ten allotments and portions of two other allotments totaling 7,740 acres would be managed under custodial use.

Livestock utilization of important mule deer winter forage (shrubs) would be limited to 20 percent of the annual growth under all grazing systems.

Under Alternative A, three areas would be used as buffer pastures to accommodate livestock use that has been temporarily suspended from an allotment due to fire, drought, or some other disaster. Unallotted areas designated as buffer pastures encompass 953 acres of public land and would provide 549 AUMs. These areas provide vegetation for wildlife use and watershed cover.

An additional 40 acres of public land, now unallotted, would be added to the Salmon Tract Isolated (Danos) allotment as part of this alternative. A two-treatment rest rotation system would be initiated on this allotment.

This leaves 7,003 acres of unallotted public lands in the EIS area. Of this, 1,720 acres are in grazing allotments which are located east of Rock Creek and will be included in the Cassia Resource Management Plan and Environmental Impact Statement scheduled for completion in 1984. An additional 2,304 acres of this unallotted land is in stock driveways which are not fenced in with allotments. The remaining 2,979 acres are primarily isolated parcels of public land that do not have authorized livestock use at the present time and are managed primarily for wildlife habitat, watershed protection, and other non-consumptive uses. Monitoring these parcels where access allows is proposed, as is curbing livestock trespass by working with owners of adjacent land.

To monitor the success of grazing systems, field studies would be conducted. Range studies would focus on actual use, trend, utilization, and on the collection of climatic data on an allotment basis. Records are kept on actual livestock grazing use. Such information is collected by BLM personnel as part of their regular range supervision duties, administrative billings, and livestock marking programs. In addition, livestock operators are required to provide BLM with their actual use figures when such data is needed for studies or planning purposes.

Utilization studies identify the amount of forage utilized by all herbivores, and trend studies measure the degree and rate of changes in vegetation condition. Such studies are important in determining whether or not stocking rates should be adjusted and in identifying livestock distribution problems. Likewise, climatological studies provide data important to the effective operation of grazing systems.

Under the Proposed Action, several techniques would be used to monitor the condition and trend of wildlife habitat in the EIS area. Mule deer winter range browse studies would be conducted each spring. Information obtained would include the condition class, utilization, shrub age, and form class of deer winter range browse. Forage utilization in sage grouse habitat would be monitored by using the key forage plant method in meadow areas and by determining shrub age and form class in known nesting/brood-rearing areas.

TABLE 2-4
PRESENT AND PROPOSED GRAZING MANAGEMENT - ALTERNATIVE A

Allotment	Acres	Systems[1] (treatments) Present	Proposed	Periods of Use Present and Proposed[2]
Babcock-Berger	607	OR(2)	OR(2)	4/1 to 7/15, 7/15 to 10/31
Buhl Group-Berger	4,465	RR(3)	RR(3)	3/16 to 4/30, 11/1 to 12/15
Kerr-Berger	2,229	OR(2)	DR(2)	11/1 to 1/31
Ellis/Tews-Berger	9,728	RR(3)	RR(3)	3/1 to 6/30, 11/1 to 2/28
Chadwick-Berger	1,360	OR(3)	DR(3)	12/1 to 2/28
Koch-Berger	948	OR(3)	DR(3)	12/1 to 4/17
Kaster-Berger	1,510	RR(3)	RR(3)	4/1 to 10/31
Kunkel-Berger	1,516	RR(3)	RR(3)	4/1 to 11/15
Lassen-Berger	640	OR(3)	OR(3)	4/1 to 10/31
Lierman-Berger	720	DR(3)	OR(3)	3/16 to 10/31
M. Lierman-Berger	640	RR(3)	RR(3)	3/16 to 10/31
Lierman/Wegener-Berger	2,044	DR(3)	DR(3)	4/16 to 11/15
Lanting-Berger	3,233	RR(3)	RR(3)	5/1 to 1/31
Martens-Berger	839	OR(3)	OR(3)	4/1 to 4/30, 9/1 to 9/30
Noh-Berger	5,105	OR(3)	DR(3)	3/1 to 7/15, 12/1 to 2/28
Parrott-Berger	1,478	RR(3)	RR(3)	4/16 to 11/30
PVGA-Berger	7,389	RR(3)	RR(3)	4/1 to 10/31
Schnitker-Berger	400	OR(2)	DR(2)	4/21 to 10/31
Smith-Berger	320	OR(2)	OR(2)	5/1 to 8/30
Wrigley-Berger	1,955	OR(3)	DR(3)	1/6 to 5/21
Skeem-Berger	316	OR(2)	OR(2)	4/16 to 9/15
J. E. Baker-Deep Creek	3,339	OR(3)	OR(3)	4/1 to 6/30, 12/1 to 12/31
J. E. Baker-Lost Creek	2,598	DR(3)	DR(3)	7/1 to 11/30
Western Stockgrowers	23,505	SU	SU	4/16 to 5/25, 10/16 to 11/15
Point Ranch	33,453	SU	OR(3)	4/1 to 12/31
Whiskey Creek	18,719	SU	OR(3)	4/1 to 12/31
Moore-Lost Creek	80	SU	SU	5/1 to 5/31
North Big Creek	1,011	C	C	4/1 to 11/30
Kerr-Lost Creek	6,666	RR(3)	RR(3)	5/1 to 10/31
Noh-White Rock	1,597	DR(3)	OR(3)	4/25 to 6/30, 11/1 to 11/30
Noh-Sections	1,455	SU	DR(3)	5/1 to 11/30
Mule Creek-PVGA	7,014	RR(3)	RR(3)	5/1 to 11/30
Horse Creek-PVGA	3,322	RR(3)	RR(3)	5/1 to 7/15, 10/15 to 11/15
Frahm-PVGA	696	RR(3)	RR(3)	5/1 to 11/30
South Mule Creek	3,018	SU	OR(3)	5/16 to 7/31
Griff	2,244	SU	OR(3)	4/15 to 9/30
Peters	1,213	SU	OR(3)	4/15 to 7/18
Rock Creek-Coiner	159	SU	SU	5/1 to 9/30
Courtnay	311	SU	SU	5/1 to 9/16
Hub Butte-WSGA	4,268	RR(3)	RR(3)	4/11 to 5/25, 11/15 to 12/31
Salmon Tract Iso. (Oanos)	80	SU	RR(2)	4/1 to 5/31
Hub Butte-Davis	800	SU	DR(3)	5/11 to 7/30
Fuller	1,070	SU	DR(3)	4/10 to 6/15, 10/1 to 11/30
Greene Private	321	C	C	5/16 to 9/30
Salmon Tract-Stewart	46	C	C	10/1 to 12/31
Soldier Creek	284	SU	SU	6/15 to 8/14
Barton-Schutte	611	SU	DR(2)	5/1 to 8/31
Jones-Goat Spring	1,386	RR(3)	RR(3)	5/1 to 8/15
Kinsey-Lost Creek	317	C	C	5/1 to 10/31
West Kunkel	1,517	RR(3)	RR(3)	4/1 to 10/31
Amsterdam-Kunkel	1,100	SU	SU	5/20 to 10/31
Loughmiller	1,675	DR(3)	DR(3)	4/20 to 9/5
Salmon Tract Ind.	40	SU	SU	4/18 to 9/17
Lilly Grade	1,644	SU	RR(3)	4/16 to 10/15
Salmon Tract-McCoy	35	C	C	4/16 to 5/27
South Big Creek	1,549	SU	RR(3)	10/1 to 10/30
Randall Iso.	106	SU	SU	5/15 to 10/27
Lemmon-Ring	252	SU	SU	12/1 to 1/31
Cameron	1,387	SU	C	7/1 to 9/15
Schnell-Salmon Tract	15,121	DR(3)	OR(3)	4/16 to 10/31
Magic Common	9,168	SU	DR(2)	5/16 to 9/30
Sharp Lost Creek	1,002	DR(3)	OR(3)	5/20 to 11/19
Salmon Tract Iso. (Stewart)	280	SU	SU	4/16 to 5/15
Lost Creek-U2	2,037	SU	RR(3)	4/20 to 5/31, 11/15 to 1/7
Salmon Tract-U2	315	SU	SU	5/15 to 7/1
Squaw Joe	5,936	SU	DR(2)	4/11 to 8/17
Squaw Joe Iso.	2,277	C	C	3/1 to 2/28
Ridge	6,823	OR(3)	OR(3)	5/1 to 10/31
Ridge Iso.	810	C	C	6/1 to 11/30
Gravel Pit-Salmon Tract	700	SU	OR(2)	4/15 to 6/25, 12/1 to 12/15
Section 22-Salmon Tract	160	SU	SU	7/1 to 10/10
Highway Unit	120	SU	SU	11/23 to 11/30
East Kunkel	280	SU	SU	10/1 to 10/10
Highway-Kunkel	447	SU	SU	11/1 to 11/15
Kunkel Iso.	315	C	C	3/1 to 2/28
Hot Creek	158	C	C	11/1 to 11/30
Tews Iso.	752	UA	C	3/1 to 2/28
Big Creek Iso.	320	UA	C	4/1 to 11/30

1 RR - Rest-Rotation DR - Deferred Rotation SU - Seasonal Use
C - Custodial UA - Unallotted

2 No changes in seasons of use are proposed under this alternative.

Aquatic habitat would be monitored periodically using the BLM's Idaho State Office "Stream Habitat Condition Evaluation Form."

For the proposed grazing systems, livestock use would be controlled by fences and natural barriers. Within allotments, grazing operators would move livestock from pasture to pasture by allowing natural drifting and by herding within time frames and utilization allowances prescribed for each grazing treatment. BLM Burley District personnel would ensure compliance with each grazing system and would monitor impacts of the system.

Though no conversions in class of livestock are proposed under this or any of the alternatives, requests would be handled under existing regulations. Trespass and crossing permits would also be handled under existing regulations.

Effects of grazing systems on water quality, yields, sediment production and infiltration would be monitored. Stream flow and storm runoffs would be measured periodically to determine whether water yields were being affected by the Proposed Action. Periodic grab samples to check possible water quality changes in streams, springs, and reservoirs would be conducted. Bacteriological quality would be an integral part of water quality monitoring.

RANGE IMPROVEMENTS. The proposed range improvements (structural developments and land treatments) are needed to implement existing and new Allotment Management Plans (AMPs) or Intergrated Ranch Plans (IRPs). They are also needed to achieve better distribution of livestock, increase livestock forage production, improve watershed condition, and improve the condition of areas for wildlife. Map 2-2 shows the location of all proposed developments. Tables 2-5 and 2-6 show proposed range improvements for livestock and wildlife, while Table 2-7 shows proposed land treatment maintenance areas.

The expected 1,467 AUM increase resulting from new range developments is based on better livestock distribution and more suitable grazing areas, due primarily to additional water facilities. An additional 4,662 AUMs of livestock forage would result from land treatment. This projected increase is based on previous experience in areas of similar conditions receiving similar treatment.

Maintenance of existing land treatments would also occur under Alternative A. Condition and trend in many of these treatment areas is downward or static. Maintenance is required to prevent the continued reversion to native range and loss of forage production below actual use levels. Because many of these areas are producing at less than optimum levels, an additional 10,005 AUMs of livestock forage would result from their maintenance.

The BLM and/or the range user would be responsible for maintenance of new improvements in accordance with existing or future project agreements. Structural developments would be inspected on a periodic basis appropriate to the specific project. Pipelines would be drained each fall. New land treatment projects and maintenance projects, would be checked during the first two growing seasons following treatment to determine success or failure, and every five years thereafter.

The BLM recognizes that some of the activities involved in implementation of the grazing management program could affect historic and cultural properties. Because of this fact, the BLM would conduct intensive field (Class III) inventories of specific areas that would be affected by grazing activities prior to implementation. If historic or cultural properties are identified every effort would be made to avoid adverse effects. However, where that is not possible, the BLM would consult with the State Historic Preservation Officer and the Advisory Council on Historic Preservation in accordance with the Programmatic Memorandum of Agreement by and between the Bureau and the

TABLE 2-5
PROPOSED RANGE DEVELOPMENTS AND LAND TREATMENTS - ALTERNATIVE A

Allotment	Developments Total Units	Developments Type[1]	Estimated Development Cost($) Per Unit	Estimated Development Cost($) Total	Estimated Yearly Maintenance Cost Per Unit	Estimated Yearly Maintenance Cost Total	Acres Disturbed Per Unit	Acres Disturbed Total	Priority[2]	Expected AUM Increase
Buhl Group-Berger	0.75 mi.	PL	3,200	2,400	250	188	1.50	1.13	2	80
	2	T	500	1,000	25	50	0.01	0.02	2	
Lanting-Berger	1	CG	2,000	2,000	100	100	0.01	0.01	1	
Martens-Berger	2	CG	2,000	4,000	100	200	0.01	0.02	1	
Noh-Berger	2	CG	2,000	4,000	100	200	0.01	0.02	1	
PVGA-Berger	340 ac.	BO	10.60	3,604	0.075	26	1.00	340.00	2	113
Schnitker-Berger	1	T	500	500	25	25	0.01	0.01	2	
	1.25 mi.	PL	3,200	4,000	250	313	1.50	1.88	2	
Western Stockgrowers	1	PS	1,200	1,200	600	600	0.10	0.10	1	800
	4	R	1,000	4,000	90	360	1.25	5.00	1	
	8	T	500	4,000	25	200	0.01	0.08	1	
	7 mi.	PL	3,200	22,400	250	1,750	1.50	10.50	1	
	1	SpO	1,200	1,200	40	40	0.35	0.35	1	50
Point Ranch	1	CG	2,000	2,000	100	100	0.01	0.01	1	
	1	T	500	500	25	25	0.01	0.01	1	
	1.5 mi.	PL	3,200	4,800	250	375	1.50	2.25	1	100
	277 ac.	SO	27	7,479	0.60	166	1.00	277.00	3	131
	181 ac.	PO	36	6,516	0.075	14	1.00	181.00	3	143
Whiskey Creek	5	CG	2,000	10,000	100	500	0.01	0.05	1	
	1,800 ac.	BO	10.60	19,080	0.075	135	1.00	1,800.00	3	772
	987 ac.	SO	27	26,649	0.60	592	1.00	987.00	3	385
	1	T	500	500	25	25	0.01	0.01	1	
	1.5 mi.	PL	3,200	4,800	250	375	1.50	2.25	1	
	2.5 mi.	F	2,200	5,500	60	150	1.20	3.00	1	
Kerr-Lost Creek	502 ac.	S	12	6,024	0.60	301	1.00	502.00	2	77
	432 ac.	SO	27	11,664	0.60	259	1.00	432.00	2	199
	1	T	500	500	25	25	0.01	0.01	1	
	0.5 mi.	PL	3,200	1,600	250	125	1.50	0.75	1	40
Noh-White Rock	1 mi.	PL	3,200	3,200	250	250	1.50	1.50	1	15
Noh-Sections	1	R	1,000	1,000	90	90	1.25	1.25	1	
	2.5 mi.	FN	3,320	8,300	75	188	1.20	3.00	1	28
Mule Creek-PVGA	1	T	500	500	25	25	0.01	0.01	1	40
	0.5 mi.	PL	3,200	1,600	250	125	1.50	0.75	1	
	907 ac.	S	12	10,884	0.60	544	1.00	907.00	3	99
Horse Creek-PVGA	180 ac.	SO	27	4,860	0.60	108	1.00	180.00	3	20
South Mule Creek	1	CG	2,000	2,000	100	100	0.01	0.01	1	
	2	T	500	1,000	25	50	0.01	0.02	1	
	0.5	PL	3,200	1,600	250	125	1.50	0.75	1	15
	1	SpD	1,200	1,200	40	40	0.35	0.35	1	
	0.5	F	2,200	1,100	60	30	1.20	0.60	1	
	285 ac.	SO	27	7,695	0.60	171	1.00	285.00	3	138
	242 ac.	S	12	2,904	0.60	145	1.00	242.00	3	23
Peters	3	T	500	1,500	25	75	0.01	0.03	1	
	1 mi.	PL	3,200	3,200	250	250	1.50	1.50	1	18
	1 mi.	F	2,200	2,200	60	60	1.20	1.20	1	
	207 ac.	BO	10.60	2,194	0.075	16	1.00	207.00	2	78
Hub Butte-WSGA	1 mi.	PL	3,200	3,200	250	250	1.50	1.50	2	50
Hub Butte-Davis	1 mi.	PL	3,200	3,200	250	250	1.50	1.50	1	16
Fuller	1	CG	2,000	2,000	100	100	0.01	0.01	1	
	1	T	500	500	25	25	0.01	0.01	1	21
	0.75 mi.	PL	3,200	2,400	250	188	1.50	1.13	1	
Soldier Creek	71 ac.	S	12	852	0.60	43	1.00	71.00	3	12
Barton Schutte	47 ac.	BD	10.60	498	0.075	4	1.00	47.00	2	22
	0.5 mi.	F	2,200	1,100	60	30	1.20	0.60	1	
	1	T	500	500	25	25	0.01	0.01	1	29
	0.3 mi.	PL	3,200	960	250	75	1.50	0.45	1	
Lilly Grade	3	T	500	1,500	25	75	0.01	0.03	1	
	2.75 mi.	PL	3,200	8,800	250	688	1.50	4.13	1	13
South Big Creek	1	CG	2,000	2,000	100	100	0.01	0.01	1	
	1 mi.	F	2,200	2,200	60	60	1.20	1.20	1	25
	757 ac.	S	12	9,084	0.60	454	1.00	757.00	3	105
Schnell-Salmon Tract	1,618 ac.	BO	10.60	17,151	0.075	121	1.00	1,618.00	3	754
	148 ac.	S	12	1,776	0	89	1.00	148.00	2	15
	620 ac.	SO	27	16,740	0.60	372	1.00	620.00	3	293
Magic Common	2.25 mi.	PL	3,200	7,200	250	563	1.50	3.38	1	
	3	T	500	1,500	25	75	0.01	0.03	1	48
	2.75 mi.	F	2,200	6,050	60	165	1.20	3.30	1	
	1,000 ac.	SD	27	27,000	0.60	600	1.00	1,000.00	2	620
Sharp-Lost Creek	.2 mi.	PL	3,200	640	250	50	1.50	0.30	1	
	80 ac.	S	12	960	0.60	48	1.00	80.00	3	15
Salmon Tract Iso. (Stewart)	150 ac.	RAS	15.50	2,325	0.075	11	1.00	150.00	1	38
	1	CG	2,000	2,000	100	100	0.01	0.01	1	
Lost Creek-U2	1.25 mi.	PL	3,200	4,000	250	313	1.50	1.88	1	13
	1.25 mi.	F	2,200	2,750	60	75	1.20	1.50	1	
	80	BO	10.60	848	0.075	6	1.00	80.00	1	20
	896 ac.	S	12	10,752	0.60	538	1.00	896.00	1	67
Squaw Joe	2	T	500	1,000	25	50	0.01	0.02	1	
	0.75 mi.	PL	3,200	2,400	250	188	1.50	1.13	1	51
	0.75 mi.	F	2,200	1,650	60	45	1.20	0.90	1	
	570 ac.	BO	10.60	6,042	0.075	43	1.00	570.00	2	157
Ridge	1	R	1,000	1,000	90	90	1.25	1.25	1	
	202 ac.	BO	10.60	2,141	0.075	15	1.00	202.00	3	104
	230 ac.	SO	27	6,210	0.60	138	1.00	230.00	3	102
Gravel Pit-Salmon Tract	1 mi.	F	2,200	2,200	60	60	1.20	1.20	1	15
	500 ac.	BD	10.60	5,300	0.075	38	1.00	500.00	2	69
Highway-Kunkel	235 ac.	PO	36	8,460	0.075	18	1.00	235.00	2	91
TOTALS				395,742		15,389		13,607.91		6,129

TABLE 2-5 -- (Cont.)

TOTALS BY PROJECT TYPE

		Units	Development Costs	Maintenance Costs	Acres Disturbed	Expected AUM Increase
[1] Water Troughs	(T)	30	15,000	750	0.30	138
Fences	(F)	11.25 mi.	24,750	675	13.50	40
Fences (Net)	(FN)	2.5 mi.	8,300	188	3.00	28
Pipelines	(PL)	25.75 mi.	82,400	6,441	38.66	411
Spring Developments	(SpD)	2	2,400	80	0.70	50
Reservoirs	(R)	6	6,000	540	7.50	
Pumping Stations	(PS)	1	1,200	600	0.10	800
Cattleguards	(CG)	15	30,000	1,500	0.15	
Plow and Drill Seed	(PD)	416 ac.	14,976	32	416.00	234
Rail, Aerial Seed	(RAS)	150 ac.	2,325	11	150.00	38
Burn and Drill Seed	(BD)	5,364 ac.	56,858	404	5,364.00	2,089
Spray and Drill Seed	(SD)	4,011 ac.	108,297	2,406	4,011.00	1,888
Spray	(S)	3,603 ac.	43,236	2,162	3,603.00	413
TOTALS			395,742	15,789	13,607.91	6,129

[2] Completion of projects is dependent on the level of funding available for project work.
Priority 1 - Scheduled for completion during FY83-FY85
Priority 2 - Scheduled for completion during FY86-FY87
Priority 3 - Scheduled for completion during FY88-FY89

TABLE 2-6
PROPOSED WILDLIFE DEVELOPMENTS - ALTERNATIVE A

Allotments	Developments Units	Developments Type[1]	Estimated Development Costs Unit	Estimated Development Costs Total	Estimated Yearly Maintenance Costs Unit	Estimated Yearly Maintenance Costs Total	Acres Disturbed Unit	Acres Disturbed Total	Priority[2]
Buhl Group-Berger	.75 mi.	PL	6,000	4,500	250	188	1.50	1.13	2
Kerr-Berger	.6 mi.	F	2,500	1,500	60	36	1.20	0.72	2
J. E. Baker-Deep Creek	1 mi	F	2,500	2,500	60	60	1.20	1.20	1
Western Stockgrowers	1 mi.	BG	2,500	2,500	75	75	0.25	0.25	1
	.85 mi.	F	2,500	2,125	60	51	1.20	1.02	1
Point Ranch	.25 mi.	F	2,500	625	60	15	1.20	0.30	1
	1	BG	2,500	2,500	75	75	0.25	0.25	1
North Big Creek	1	BG	2,500	2,500	75	75	0.25	0.25	1
Noh-Sections	.3 mi.	F	2,500	750	60	18	1.20	0.36	2
Mule Creek-PVGA	1	BGG	4,000	4,000	100	100	1.00	1.00	1
	1	BG	2,500	2,500	75	75	0.25	0.25	1
	.3 mi.	F	2,500	750	60	18	1.20	0.36	1
	2	PH	1,000	2,000	90	180	2.00	4.00	1
Horse Creek-PVGA	2.45 mi.	F	2,500	6,125	60	147	1.20	2.94	2
South Mule Creek	1	BG	2,500	2,500	75	75	0.25	0.25	1
	.35 mi.	F	2,500	875	60	21	1.20	0.42	1
Hub Butte	1	BG	2,500	2,500	75	75	0.25	0.25	1
Barton-Schutte	1	BG	2,500	2,500	75	75	0.25	0.25	1
West Kunkel	2.3 mi.	F	2,500	5,750	60	138	1.20	2.76	2
Loughmiller	1 mi.	F	2,500	2,500	60	60	1.20	1.20	3
Schnell-Salmon Tract	1	BG	2,500	2,500	75	75	0.25	0.25	1
	.5 mi.	F	2,500	1,250	60	30	1.20	0.60	1
Lost Creek-U2	1	BG	2,500	2,500	75	75	0.25	0.25	1
Squaw Joe	.5	F	2,500	1,250	60	30	1.20	0.60	1
	1	BG	2,500	2,500	75	75	0.25	0.25	1
Ridge	2	BGG	4,000	8,000	100	200	1.00	2.00	1
	1	BG	2,500	2,500	75	75	0.25	0.25	1
Gravel Pit-Salmon Tract	.65 mi.	F	2,500	1,625	60	39	1.20	0.78	3
Totals				73,625		2,156		24.14	

TOTALS BY PROJECT TYPE

[1] Fences	(F)	11.05 mi.	27,625	663	13.26
Big Game Guzzlers	(BGG)	3	12,000	300	3.00
Bird Guzzlers	(BG)	11	27,500	825	2.75
Pipelines	(PL)	0.75 mi.	4,500	188	1.13
Pothole Construction	(PH)	2	2,000	180	4.00
TOTALS			73,625	2,156	~~19.05~~ 24.14

[2] Completion of projects is dependent on the level of funding available for project work.
Priority 1 - Scheduled for completion during FY83-FY85
Priority 2 - Scheduled for completion during FY86-FY87
Priority 3 - Scheduled for completion during FY88-FY89

TABLE 2-7
PROPOSED MAINTENANCE - EXISTING LAND TREATMENTS - ALTERNATIVE A

Allotment	Developments: Total Units	Developments: Type[1]	Estimated Development Cost: Per Unit	Estimated Development Cost: Total	Estimated Yearly Maintenance Cost: Per Unit	Estimated Yearly Maintenance Cost: Total	Acres Disturbed	Year Completed[2]	Expected AUM Increase
Babcock-Berger	246 ac.	SMB	1.50	369	.075	19	246	83	79
Buhl Group-Berger	2,020 ac.	SMB	1.50	3,030	.075	152	2,020	83-85	449
Kerr-Berger	1,600 ac.	SMB	1.50	2,400	.075	120	1,600	83-86	485
Ellis/Tews-Berger	3,770 ac.	SMB	1.50	5,655	.075	283	3,770	83-88	1,196
Chadwick-Berger	160 ac.	SMB	1.50	240	.075	12	160	83	50
Koch-Berger	100 ac.	SMB	1.50	150	.075	8	100	83	34
Kaster-Berger	400 ac.	SMB	1.50	600	.075	30	400	83	124
Kunkel-Berger	280 ac.	SMB	1.50	420	.075	21	280	84	80
Lassen-Berger	80 ac.	SMB	1.50	120	.075	6	80	83	25
Lierman/Wegner-Berger	150 ac.	SMB	1.50	225	.075	11	150	85	46
Lanting-Berger	1,010 ac.	SMB	1.50	1,515	.075	76	1,010	83-85	253
Martens-Berger	200 ac.	SMB	1.50	300	.075	15	200	83	50
Noh-Berger	820 ac.	SMB	1.50	1,230	.075	62	820	83-85	210
Parrott-Berger	790 ac.	SMB	1.50	1,185	.075	59	790	83-86	252
PVGA-Berger	400 ac.	SMS	12	4,800	.60	240	400	83	110
	1,590 ac.	SMB	1.50	2,385	.075	119	1,590	84-87	484
Schnitker-Berger	320 ac.	SMB	1.50	480	.075	24	320	83	120
Wrigley-Berger	1,010 ac.	SMB	1.50	1,515	.075	76	1,010	83,85	341
J. E. Baker-Deep Creek	1,086 ac.	SMB	1.50	1,629	.075	82	1,086	86	362
J. E. Baker-Lost Creek	593 ac.	SMS	12	7,116	.60	356	593	86	356
Western Stockgrowers	1,206 ac.	SMS	12	14,472	.60	724	1,206	85	301
Whiskey Creek	2,252 ac.	SMB	1.50	3,378	.075	169	2,252	85	811
Moore-Lost Creek	43 ac.	SMS	12	516	.60	26	43	86	12
Kerr-Lost Creek	2,752 ac.	SMS	12	33,024	.60	1,651	2,752	83,86,87	1,063
Noh-White Rock	349 ac.	SMS	12	4,188	.60	209	349	86	104
Mule Creek-PVGA	882 ac.	SMS	12	10,584	.60	529	882	84	281
Horse Creek-PVGA	1,360 ac.	SMS	12	16,320	.60	816	1,360	83,84,88	277
South Mule Creek	69 ac.	SMS	12	828	.60	42	69	87	26
Hub Butte-WSGA	1,208 ac.	SMS	12	14,496	.60	725	1,208	82,85	383
	560 ac.	SMB	1.50	840	.075	42	560	86	178
Hub Butte-Davis	517 ac.	SMB	1.50	776	.075	39	517	84,86,88	129
Fuller	825 ac.	SMB	1.50	1,238	.075	62	825	85,87,89	265
Jones-Goat Spring	400 ac.	SMB	1.50	600	.075	30	400	86	87
	787 ac.	SMS	12	9,444	.60	473	787	87	176
West Kunkel	600 ac.	SMB	1.50	900	.075	45	600	85	150
Lilly Grade	300 ac.	SMS	12	3,600	.60	180	300	83	118
	294 ac.	SMR	3.50	1,029	.075	22	294	87	100
Schnell-Salmon Tract	309 ac.	SMB	1.50	464	.075	23	309	86	92
Sharp-Lost Creek	248 ac.	SMS	12	2,976	.60	149	248	84	110
Squaw Joe	651 ac.	SMS	12	7,812	.60	391	651	83	188
East Kunkel	280 ac.	SMB	1.50	420	.075	21	280	85	48
Whiskey Creek Buffer[3]	437 ac.	SMB	1.50	656	.075	33	437	86	161
TOTALS				163,925		8,172	32,954		10,166

TOTALS BY PROJECT TYPE

[1] Seeding Maintenance						
Burning	(SMB) 21,812 ac.	32,720	1,639	21,812		6,561
Spraying	(SMS) 10,848 ac.	130,176	6,511	10,848		3,505
Railing	(SMR) 294 ac.	1,029	22	294		100
TOTALS	32,954 ac.	163,925	8,172	32,954 ac.		10,166

[2] All maintenance is considered Priority 1 work. A seven-year schedule would be adopted to complete this work (dependent on the level of funding provided). Maintenance work would be completed prior to using funding for new projects.

[3] AUMs resulting from this maintenance would not be allocated.

Council, dated January 15, 1980. This agreement sets forth a procedure for developing appropriate mitigative measures to lessen the adverse impact on historic and cultural sites.

In order to minimize environmental impacts to soil and vegetation due to wet weather conditions, range improvement work would be limited to periods

when soil moisture conditions are such that minimal resource damage would occur. During this period, construction would be curtailed when excessively wet soil conditions prevail.

Additional seasonal limitations on construction would be implemented on a project by project basis, depending on wildlife habitat. In mule deer winter range, construction activities would be prohibited between November 1 and April 30; in mule deer fawning areas, no construction activity from April 15 to June 15; in sage grouse nesting/brood-rearing complexes, no construction activity from March 15 to June 15. No construction would occur within one-half mile of raptor nest sites or the rim of Salmon Falls Canyon during the nesting period.

Other mitigation, which would minimize environmental impacts to wildlife and would be incorporated into all present work, includes project clearances for threatened, endangered, sensitive, and high interest wildlife species, as well as utilization of an appropriate wildlife seed mixture of shrubs, forbs, and grasses in project site rehabilitation.

Visual contrast ratings would be applied and landscape design principles incorporated during the planning stages of all proposed land management activities that would disturb the soil, change or remove vegetation, or place a structure on the landscape. This would ensure that visual management guidelines are met.

Access to proposed range development sites would generally not require bladed road construction. Vehicle access would be cross-country in roadless areas of gentle to moderate terrain. Used only for access during construction and routine maintenance, these trails would not receive enough use by BLM to keep them active. In areas of rough terrain, some road construction might be required.

Structural Developments. As a part of the Proposed Action, 30 water troughs would be installed to meet the identified needs of livestock and wildlife and to facilitate implementation of grazing systems. The troughs used would be designed to meet Burley District BLM specifications which include specific wildlife considerations. Erosion protection methods would be designed for the area around each trough (e.g., gravel pad, old tires filled with dirt).

Small animal escape ramps would be installed on each trough. Either an overflow pipe would be installed to carry excess water from the troughs down the drainage to a protected area, or float valves would be installed to prevent overflow and conserve water. Troughs would be painted a non-reflective, neutral color, such as rust or gray, to blend with surrounding vegetation and soil coloration. If galvanized, troughs would be allowed to weather naturally to a dull, non-reflective finish. Skylining or locating troughs in the immediate foreground, visible from major roads, would be avoided.

Two spring developments are proposed. Construction would entail some excavation work with a tractor-mounted backhoe for developing the water collection system and for burying plastic pipe. An area would be fenced around the spring head to protect wildlife food and cover and to prevent livestock trampling and compaction of wet soil around the spring. Visual impacts to vegetation near the spring would be limited by diverting only a portion of the spring flow.

One pumping station would be constructed to provide livestock and wildlife with water in an area where none presently exists. A pump and generator would be installed to pump water from an ephemeral stream to a proposed pipeline, and a pump house would be constructed to protect the system. Landscape design and visual considerations would be incorporated into the design of the pump house---material type, coloration, and so forth.

Under the Proposed Action, seven pit-type reservoirs would be constructed in intermittent drainages to impound water. Construction would consist of excavating a reservoir area and using the removed soil to construct a dam across the drainage. The reservoirs would be sealed with bentonite clay where necessary. Their size would vary from one-third to one surface acre and they would be two to ten feet deep.

One-half of each reservoir would be fenced to exclude livestock, but not wildlife. Actual area fenced would depend on terrain and pond size, but should be approximately 200 feet back from the normal high water line. All excavation material not used in construction of the dam would be bladed to conform to the natural topography. All areas of bare soil would be seeded for soil stabilization.

Pipelines totaling 26.5 miles would be constructed. They would carry water from a central source to areas where it is not now available for livestock or wildlife. Pipelines would be laid by one of several methods including ripper tooth, backhoe, and motor patrol, depending on terrain, soil conditions, and other factors. The pipeline route may require clearing prior to laying the pipe, depending on construction method and vegetative cover.

Upon burying the pipeline, it would be waterbarred, if necessary, and seeded with an appropriate mixture of shrubs, forbs, and grasses. Whenever possible, pipelines would be laid adjacent to existing roads or trails and along, rather than across, land contours. Water would be provided for wildlife use during the period from April through October. In addition, bird watering guzzlers would be placed along all pipelines and would be fenced to exclude livestock.

Fences totaling 13.75 miles are planned to facilitate implementation of proposed grazing systems. An additional 11.05 miles of fence would be constructed for wildlife needs. All proposed fencing would be constructed to BLM Burley District specifications for four-strand barbed wire fence in a manner appropriate to meet the requirements of both livestock and wildlife except for two and one-half miles of net wire fence.

Off-road vehicle travel would be necessary to facilitate fence installation, but no bladed roads would be constructed. Hand clearing of fence lines would be practiced except in areas of thick brush, where blading may be required.

Unless creating a safety problem, non-reflective steel posts of a color compatible with the surrounding landscape would be used in constructing fences and wooden posts would be used on corners, gates and stretch panels.

Cattleguards would be located at 15 sites where fences cross roads. These would be 16 to 24 feet in width and eight feet in length, the size depending on the traffic type and pattern. Excavated material not used as back fill around the cattleguard base would be reshaped to conform to surrounding natural contours. A gate would be placed on one or both sides of the cattleguard to allow for livestock passage. Cattleguard color must meet safety standards and where feasible, be compatible with the surrounding landscape.

Three big game water guzzlers would be installed on critical mule deer summer range. These guzzlers would be designed for the sole use of wildlife and would help alleviate competition for water between mule deer and livestock. Construction would involve burying a 1,500 gallon storage tank, constructing a 200 square foot apron of corrugated fiberglass, installing a watering trough at ground level, and constructing an exclosure fence around the project. Coloration of the guzzlers would be such that they would blend with the surrounding landscape. Small animal escape ramps would be installed on each trough.

Alternative A also includes construction of 11 bird guzzlers. Similar in construction to the big game guzzlers, though smaller, the same visual mitigation would be appropriate. The project involves installation of a bird waterer rather than a water trough. Competition between upland game birds and livestock for water would be reduced with installation of these guzzlers.

Two potholes would be constructed within existing wet area wildlife enclosures. Development of these potholes would require prior inspection to ensure that the water supply would not be depleted. Construction would be by one of three methods--dredging with a drag line, blasting with dynamite and fertilizer, or blasting with an ammonium nitrate fuel-oil mixture.

Land Treatments. A total of 13,544 acres of public land would be treated to improve vegetative production resulting in an increase in livestock allocation of 4,662 AUMs. Several methods are proposed for achieving the desired improvement. These will be discussed in detail below.

Several factors would be considered in laying out all land treatment areas regardless of proposed method. All land treatment areas should be irregular in shape and contain islands of untreated vegetation. This simulates natural vegetative patterns, increases the edge effect, and provides wildlife cover within the treated area. An irregular buffer strip would be left adjacent to any major road. Such a buffer would be several hundred feet wide in some areas, while quite narrow in others, thus creating a more natural appearance than would a uniform strip. Because of their limited and scattered nature, any trees in the land treatment areas would be avoided because of the visual diversity and wildlife habitat they provide.

Cover requirements and hunting/foraging needs of wildlife would also be considered on a site by site basis in completing land treatments. In areas identified as ferruginous hawk habitat, a minimum of 15 percent of the land treatment area would be left in its present successional stage in the form of scattered islands to ensure a continued diverse prey base. On antelope range, dense stands of sagebrush, particularly in protected areas such as draws, would be left to provide cover. Complete kill of sagebrush within treatment areas would be avoided and enough natural cover would be maintained to permit efficient deer utilization and to provide for sage grouse habitat needs. In addition, at least a 100-yard strip of vegetation along all streams and around all meadows would be left for cover and habitat diversity and for water quality protection.

In all treatment areas to be seeded, an appropriate mixture of shrubs, forbs, and grasses would be seeded to provide succulent forage for wildlife in the area. Following treatment, livestock would be excluded for two growing seasons to ensure germination and establishment of the plant species seeded.

A total of 3,603 acres, principally of big sagebrush in eight allotments, has been recommended for spraying with the herbicide 2,4-D.

The method of foliar application would be aerial spraying by helicopter. For most effective sagebrush control, the herbicide would be applied to foliage after leaves and shoots have developed but before the leaf cuticle has thickened. This is the stage of plant growth when carbohydrate reserves are being replenished and when the brush would be most affected by the herbicide.

Expected forage increase from the spraying is 413 AUMs. This figure was determined by analyzing the 1979 vegetative inventory for each area to be treated to determine the current carrying capacity in acres per AUM. This capacity was then divided into the total acres to be treated. Mueggler and Blaisdell, in an article titled "Effects on Associated Species of Burning, Rotobeating, Spraying, and Railing Sagebrush" (1958), found that grass production increased an average of 75 percent over a three-year period after

control was implemented on sagebrush on the Snake River Plain. As the EIS area is in the Snake River Plain physiographic sub-region, the current capacity of the areas to be treated was multiplied by 75 percent to determine the expected AUM increase after treatment.

Chemical control of sagebrush would reduce brush composition of the vegetative type, release moisture, and create light and space, giving the grass species a chance to gain vigor and increase in density. The result would be increased grass composition for the vegetative type. Although converted sagebrush stands would eventually return to the original brush cover, proper stocking rates and livestock husbandry would slow the process.

Fire was considered as a brush control method in these areas, but lack of sufficient fuel, presence of fire-enhanced shrubs (rabbitbrush), and possible damage to bitterbrush in deer winter range made this option unfeasible.

A total of 4,011 acres in eight allotments would be treated by spraying and drill seeding. Spraying would be accomplished with 2,4-D and a rangeland drill pulled by a caterpillar-type tractor would be used for seeding.

Expected forage increase from this treatment is 1,888 AUMs. This figure was determined by comparing existing production of the proposed treatment areas with similar sites which have been seeded in the EIS area.

Spraying alone was excluded as a treatment method due to lack of natural perennial forage seed sources in and around the proposed treatment area. Fire was excluded due to lack of sufficient fuel to carry a fire and certain consumption of plant litter important for watershed protection.

Burning and drill seeding of 5,364 acres have been proposed in nine allotments. An additional 2,089 AUMs of livestock forage would result from the treatments. Controlled burning is an effective and inexpensive method of brush control where adequate fuel is available to carry the fire. Perennial forage species present on proposed treatment areas are insufficient to revegetate the areas naturally. Drill seeding with a mixture of grasses and forbs would result in a well established stand of perennial species.

District fire management personnel, livestock operators, or other qualified personnel would conduct all burns. Fire breaks would be constructed with motorized equipment and would be reseeded after burning with an appropriate seed mixture.

A total of 416 acres has been proposed for plowing and drill seeding in two allotments. This treatment is expected to result in an additional 234 AUMs of livestock forage. The treatment would be accomplished by using a rangeland plow pulled by a caterpillar-type tractor. Following the brush removal, a rangeland drill would be used to seed the area.

Railing and aerial seeding have been proposed for 150 acres. This treatment would be accomplished by dragging two or more 20-foot railroad rails over the treatment area. Sagebrush plants would be uprooted or broken off. A seed mixture would then be aerially applied and the area would be railed again to cover the seed and further remove brush.

This treatment was chosen over burning due to lack of fuel. Spraying was rejected because of the area's close proximity to agricultural lands which could be adversely affected by drifting chemicals.

Seeding maintenance has been proposed for 32,954 acres of existing land treatment with an expected 10,166 AUM-increase in 38 allotments, including the Whiskey Creek Buffer Pasture. Treatments which would be used include burning, spraying, and railing. The specific treatment for each area was determined by the same criteria discussed in treatment descriptions listed above.

Due to the hardiness of crested wheatgrass, no new seeding would be undertaken as part of the maintenance except in limited areas. Interseeding of mixed grasses and forbs is proposed in some areas based on wildlife needs.

Mitigating factors for maintenance would be the same as those for new land treatments as appropriate to the specific sites. In addition, leave areas in the projects would be the same as were originally left unless higher value wildlife needs are identified on other portions of the treatment area.

ALTERNATIVE B
INCREASED LIVESTOCK USE

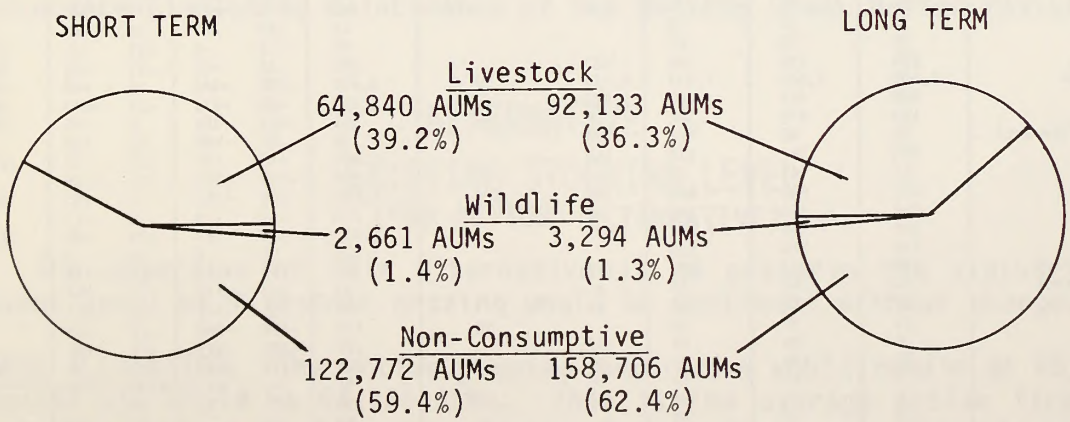
The objective of the "Increased Livestock Use" alternative is to provide minimum constraints on the livestock industry within the productive capability of the forage resource. As a means of achieving this objective, forage would be allocated at a 92,133-AUM level following completion of new range developments, land treatments, and land treatment maintenance. This level of forage use is 103 percent greater than grazing preference and 68 percent greater than the six-year average licensed use level established voluntarily by permittees in the EIS area. Achieving this objective would result in significant direct and secondary income gains for BLM grazing permittees. Implementation would occur as indicated in the Proposed Action.

FORAGE ALLOCATION. Vegetation allocations proposed under Alternative B are shown in Table 2-8. The allocation includes an initial 64,840 AUMs, the forage production capacity as derived from the SVIM inventory conducted in 1979. An additional 16,513 AUMs would be available as a result of range developments and land treatments while maintenance of existing land treatments would provide an additional 10,780 AUMs. A total of 92,133 AUMs would be available for livestock over the long term (by 2000).

Initially, Alternative B would provide 13 percent more livestock AUMs than Alternative A and 25 percent more in the long term.

The initial big game wildlife allocation under this alternative would be 2,661 AUMs, or that needed to meet the needs of the present population. Where useable forage exists and wildlife needs are present, additional long-term allocations to wildlife would be made. The total long-term allocation to big game would be 3,294 AUMs, a shortage of 1,111 AUMs over what is needed to meet 1990 projections (75 percent of needed allocation).

Apportionment of the total vegetative biomass among consumptive and non-comsumptive uses can be summerized as follows:



Total = 190,273 AUMs

Total = 254,133 AUMs

TABLE 2-8

PROPOSED FORAGE ALLOCATION - ALTERNATIVE B

Allotment	Authorized Livestock AUMs	6 Year Average Licensed Use	Proposed Livestock Grazing Use: Short-Term Initial Forage Allocation	Additional AUMs Available From: New Projects	Additional AUMs Available From: Maintenance	Long-Term Total AUMs Available	Proposed Livestock Adjustments(%): From Authorized Use: Short Term	From Authorized Use: Long Term	From 6-Year Average: Short Term	From 6-Year Average: Long Term	Proposed Wildlife Use (AUMs): Initial	Proposed Wildlife Use (AUMs): Long Term
Babcock-Berger	420	336	448		79	527	+ 7	+25	+33	+57		
Buhl Group-Berger	1,904	1,290	1,904	80	449	2,433	0	+28	+48	+89		
Kerr-Berger	1,500	1,285	1,500		485	1,985	0	+32	+17	+54		
Ellis/Tews-Berger	5,000	4,357	5,000	264	1,196	6,460	0	+29	+15	+48		
Chadwick-Berger	900	889	1,104		50	1,154	+23	+28	+32	+30		
Koch-Berger	660	506	687		34	721	+ 4	+ 9	+36	+42		
Kaster-Berger	910	670	910		124	1,034	0	+14	+36	+54		
Kunkel-Berger	825	733	947		80	1,027	+15	+24	+29	+40		
Lassen-Berger	420	324	420		25	445	0	+6	+30	+38		
Lierman-Berger	420	340	545			545	+30	+30	+60	+60		
M. Lierman-Berger	425	283	425			425	0	0	+50	+50		
Lierman/Wegener-Berger	1,050	908	1,050		46	1,096	0	+4	+16	+21		
Lanting-Berger	2,000	1,434	2,000		253	2,253	0	+13	+39	+57		
Martens-Berger	400	357	400		50	450	0	+13	+12	+26		
Noh-Berger	3,223	2,734	3,223		210	3,433	0	+7	+18	+26		
Parrott-Berger	798	789	798		252	1,050	0	+32	+ 1	+33		
PVGA-Berger	3,520	2,750	3,520	113	594	4,227	0	+20	+28	+54		
Schnitker-Berger	217	153	217		120	337	0	+55	+42	+120		
Smith-Berger	210	144	210			210	0	0	+46	+46		
Wrigley-Berger	945	573	945	234	341	1,520	0	+61	+65	+165		
Skeem-Berger	215	164	215			215	0	0	+31	+31		
J. E. Baker-Deep Creek	619	953	801		362	1,163	+29	+88	-16	+22		
J. E. Baker-Lost Creek	296	353	480		388	868	+62	+193	+36	+146	43	46
Western Stockgrowers	2,114	2,600	4,537	3,052	301	7,890	+108	+262	+75	+203	1,544	1,905
Point Ranch	3,580	4,221	5,427	1,423		6,850	+52	+91	+29	+62	127	217
Whiskey Creek	1,976	4,209	4,481	2,314	811	7,606	+127	+285	+ 6	+81		9
Moore-Lost Creek	20	20	30		12	42	+50	+110	+50	+110	5	5
North Big Creek	40	160	282	54		336	+605	+740	+76	+110	20	23
Kerr-Lost Creek	627	2,379	1,683	591	1,407	3,681	+168	+487	+71	+55	12	18
Noh-White Rock	333	253	379	15	138	532	+14	+60	+50	+110	19	27
Noh-Sections	220	291	462	140		602	+110	+174	+59	+107	48	55
Mule Creek-PVGA	430	1,177	1,422	237	370	2,029	+231	+372	+21	+72	72	96
Horse Creek-PVGA	637	1,015	746	40	371	1,157	+17	+82	-26	+14	40	51
Frahm-PVGA	36	157	143	32		175	+297	+386	-9	+11	39	39
South Mule Creek	226	257	323	488	26	837	+43	+270	+26	+226	59	76
Griff	592	1,280	1,404			1,404	+137	+137	+10	+10		
Peters	298	405	515	174		689	+73	+131	+27	+70		
Rock Creek-Coiner	50	50	180			180	+260	+260	+260	+260		
Courtnay	68	102	145			145	+113	+113	+42	+42		
Hub Butte-WSGA	576	1,142	1,404	355	561	2,320	+144	+303	+23	+103		
Salmon Tract Iso. (Danos)	10	8	10			10	0	0	+25	+25		
Hub Butte-Davis	180	196	156	113	129	398	-13	+121	-20	+103		
Fuller	354	353	300	21	341	662	-15	+87	-15	+88		
Greene Private	48	48	118			118	+146	+146	+146	+146	19	30
Salmon Tract-Stewart	4	6	5			5	+25	+25	-17	-17		
Soldier Creek	22	49	34	25		59	+55	+168	-31	+20	10	14
Barton-Schutte	121	312	483	51		534	+299	+341	+55	+71		
Jones-Goat Spring	66	478	441		263	704	+568	+967	-8	+47		
Kinsey-Lost Creek	50	40	40			40	-20	-20	0	0	5	5
West Kunkel	151	690	723		150	873	+379	+478	+5	+27		
Amsterdam-Kunkel	46	142	175	231	70	476	+280	+935	+23	+235		
Loughmiller	255	610	726			726	+185	+185	+19	+19		
Salmon Tract Ind.	10	10	21			21	+110	+110	+110	+110		
Lilly Grade	330	266	277	13	218	508	-16	+54	+4	+91		
Salmon Tract-McCoy	5	5	16			16	+120	+220	+220	+220		
South Big Creek	65	65	246	235		481	+278	+640	+279	+640	7	7
Randall Iso.	30	31	10			10	-67	-67	-68	-68		
Lemmon-Ring	30	24	29			29	-3	-3	+21	+21	15	19
Cameron	235	188	160	123		283	-32	+20	-15	+51	50	50
Schnell-Salmon Tract	1,535	4,633	4,633	2,124	92	6,849	+202	+346	0	+48	28	0
Magic Common	480	723	807	2,423		3,230	+68	+573	+12	+347	54	83
Sharp Lost Creek	120	378	378	29	146	553	+215	+361	0	+46	35	53
Salmon Tract Iso. (Stewart)	50	50	24	70		94	-52	+88	-52	+88		
Lost Creek-U2	380	381	335	166		501	-12	+32	-12	+32	110	148
Salmon Tract-U2	30	49	72	60		132	+140	+340	+47	+169		
Squaw Joe	476	898	898	364	188	1,480	+89	+211	0	+65	68	86
Squaw Joe Iso.	204	240	240	30		270	+18	+18	0	+13		
Ridge	999	882	1,137	497		1,634	+14	+64	+29	+85	222	222
Ridge Iso.	126	126	126			126	0	0	0	0		
Gravel Pit-Salmon Tract	170	153	249	112		361	+46	+112	+63	+136		
Section 22-Salmon Tract	40	44	44	43		87	+10	+118	0	+98		
Highway Unit	11	18	16	43		59	+45	+436	-11	+228		
East Kunkel	13	92	80		48	128	+515	+885	-13	+39		
Highway-Kunkel	16	86	65	107		172	+306	+975	-24	+100		
Kunkel Iso.	30	108	77	27		104	+157	+247	-29	-4	10	10
Hot Creek	0	47	94			94	--	--	+100	+100		
Tews Iso.	0	0	194			194	--	--	--	--		
Big Creek Iso.	0	0	89			89	--	--	--	--		
TOTALS	45,392	54,472	64,840	16,513	10,780[1]	92,133	+43	+103	+19	+69	2,661	3,294

[1] An increase of 161 AUMs would result from maintenance of an existing land treatment on the Whiskey Creek Buffer Pasture. (10,941 AUMs total increase from maintenance.)

GRAZING SYSTEMS. In order to meet the increased forage needs under this alternative, additional changes in grazing systems would be required, as follows:

Allotment	Systems[1] (treatments) Present	Alt. A	Alt. B
Western Stockgrowers	SU	SU	DR(3)
Hub Butte - WSGA	RR(3)	RR(3)	DR(3)
Amsterdam - Kunkel	SU	SU	DR(3)
Cameron	SU	C	DR(2)
Squaw Joe	SU	DR(2)	RR(3)

[1] RR-Rest-Rotation SU-Seasonal Use
DF-Deferred Rotation C -Custodial

No change in periods of use would occur from the present situation. Mitigation appearing in this component of Alternative A would not be included in this alternative so as not to impose any constraints on livestock use of the range vegetation.

The operational and monitoring aspects of grazing management would remain the same as in Alternative A, but activity plans for resources other than livestock grazing would be approved only if compatible with the livestock grazing management program proposed in Alternative B.

RANGE IMPROVEMENTS. The range developments and land treatments proposed under this alternative are needed to increase livestock forage production, implement new and existing Allotment Management Plans and/or Integrated Ranch Plans, and achieve better distribution of livestock. Range developments and land treatments identified for completion under the "Increased Livestock Use" alternative include all those in the Proposed Action (see Table 2-5) as well as those additional projects identified in Table 2-9 and on Map 2-3. A total of 16,564 AUMs of forage allocated to livestock use would result from the new range developments and land treatments under this alternative.

Existing land treatments would also be maintained under this alternative. Maintenance of these treatment areas is necessary to sustain current forage production levels. The resulting improvement in condition on these areas would increase forage production above present levels. All maintenance proposed in Alternative A (see Table 2-7) plus the additional maintenance identified in Table 2-10 and on Map 2-3 would be completed. An additional 10,941 AUMs of livestock forage would be allocated as a result of this maintenance (including maintenance of the Whiskey Creek Buffer Pasture).

ALTERNATIVE C
EXISTING STOCKING LEVEL
("NO ACTION" ALTERNATIVE)

The objective of this alternative is to preserve the status quo. The present level of livestock grazing would be continued without change.

FORAGE ALLOCATION. The active *grazing preference* would remain at 45,653 AUMs. Licensed use would be 54,755 AUMs. This is the average active licensed use level established by EIS area livestock operators over the six-year period

TABLE 2-9
PROPOSED RANGE DEVELOPMENTS AND LAND TREATMENTS - ALTERNATIVE B
(In Addition to Those in Alternative A)

Allotment	Developments Total Units	Type[1]	Estimated Development Cost($) Per Unit	Total	Estimated Yearly Maintenance Cost Per Unit	Total	Acres Disturbed Per Unit	Total	Priority[2]	Expected AUM Increase
Ellis/Tews-Berger	550 ac.	SD	27	14,850	0.60	330	1.00	550.00	2	264
Wrigley-Berger	411 ac.	BD	1.50	617	0.075	31	1.00	411.00	1	234
Western Stockgrowers	600 ac.	DS	18.50	11,100	0.80	480	1.00	600.00	2	140
	155 ac.	BD	10.60	1,628	0.075	12	1.00	155.00	3	63
	1,498 ac.	SD	27	40,446	0.60	899	1.00	1,498.00	3	485
	7,495 ac.	S	12	89,940	0.60	4,497	1.00	7,495.00	3	914
	1	PS	1,200	1,200	600	600	0.10	0.10	2	600
	2	T	500	1,000	25	50	0.01	0.02	2	
	1 mi.	PL	3,200	3,200	250	250	1.50	1.50	2	
	1	SpD	1,200	1,200	40	40	0.35	0.35	2	
	1.5 mi.	F	2,200	3,300	60	90	1.20	1.80	1	
Point Ranch	2,163 ac.	BD	10.60	22,928	0.075	162	1.00	2,163.00	3	876
	276 ac.	SD	27	7,452	0.60	166	1.00	276.00	3	131
	181 ac.	PD	36	6,516	0.075	14	1.00	181.00	3	42
Whiskey Creek	1,799 ac.	BD	10.60	19,069	0.075	135	1.00	1,799.00	3	772
	987 ac.	SD	27	26,649	0.60	592	1.00	987.00	3	385
North Big Creek	720 ac.	S	12	8,640	0.60	432	1.00	720.00	3	54
Kerr-Lost Creek	502 ac.	S	12	6,024	0.60	301	1.00	502.00	1	76
	431 ac.	SD	27	11,637	0.60	259	1.00	432.00	1	199
Non-Sections	783 ac.	S	12	9,396	0.60	470	1.00	783.00	2	112
Mule Creek-PVGA	906 ac.	S	12	10,872	0.60	544	1.00	906.00	1	98
Horse Creek-PVGA	180 ac.	SD	27	4,860	0.60	108	1.00	180.00	1	20
Frahm-PVGA	258 ac.	S	12	3,096	0.60	155	1.00	258.00	3	32
South Mule Creek	295 ac.	BD	10.50	3,127	0.075	22	1.00	295.00	2	153
	285 ac.	SD	27	7,695	0.60	171	1.00	285.00	2	137
	239 ac.	S	12	2,868	0.60	144	1.00	239.00	2	22
Peters	206 ac.	BD	10.60	2,184	0.075	16	1.00	206.00	3	78
Hub Butte-WSGA	1,156 ac.	BD	10.60	12,254	0.075	87	1.00	1,156.00	3	305
Hub Butte-Davis	269 ac.	SD	27	7,263	0.60	161	1.00	269.00	1	97
Soldier Creek	83 ac.	S	12	996	0.60	50	1.00	83.00	1	13
Amsterdam-Kunkel	1	R	1,000	1,000	90	90	1.25	1.25	2	15
	3	T	500	1,500	25	75	0.01	0.03	3	
	1.75 mi.	PL	3,200	5,600	250	438	1.50	2.63	3	
	1	ST	4,100	4,100	200	200	0.10	0.10	3	10
	1	W	7,500	7,500	500	500	.01	0.01	3	
	1.25 mi.	F	2,200	2,750	60	75	1.20	1.50	2	
	567 ac.	BD	10.60	6,010	0.075	43	1.00	567.00	2	206
South Big Creek	758 ac.	S	12	9,096	0.60	455	1.00	758.00	2	105
Cameron	1,102 ac.	S	12	13,224	0.60	661	1.00	1,102.00	2	114
	1	ST	6,100	6,100	200	200	0.10	0.10	3	9
	1	W	7,500	7,500	500	500	0.01	0.01	3	
	1	T	500	500	25	25	0.01	0.01	3	
	.5 mi.	PL	3,200	1,600	250	125	1.50	0.75	3	
Schnell-Salmon Tract	1,619 ac.	BD	10.60	17,161	0.075	121	1.00	1,619.00	2	754
	147 ac.	S	12	1,764	0.60	88	1.00	147.00	2	15
	619 ac.	SD	27	16,713	0.60	372	1.00	619.00	2	293
Magic Common	2,925 ac.	SD	27	78,975	0.60	1,755	1.00	2,925.00	3	1,755
Sharp-Lost Creek	79 ac.	S	12	948	0.60	47	1.00	79.00	1	14
Salmon Tract Iso. (Stewart)	130 ac.	RAS	15.50	2,015	0.075	10	1.00	130.00	1	32
Lost Creek-U2	896 ac.	S	12	10,752	0.60	538	1.00	896.00	1	66
Salmon Tract-U2	200 ac.	BD	10.60	2,120	0.075	15	1.00	200.00	3	60
Squaw Joe	570 ac.	BD	10.60	6,042	0.075	43	1.00	570.00	2	156
	2 mi.	F	2,200	4,400	60	120	1.20	2.40	1	
Squaw Joe Iso.	170 ac.	S	12	2,040	0.60	102	1.00	170.00	3	30
Ridge	67 ac.	BD	10.60	710	0.075	5	1.00	67.00	2	35
	77 ac.	SD	27	2,079	0.60	46	1.00	77.00	2	34
	2,468 ac.	S	12	29,616	0.60	1,481	1.00	2,468.00	2	222
Gravel Pit-Salmon Tract	200 ac.	BD	10.60	2,120	0.075	15	1.00	200.00	1	28
Section 22-Salmon Tract	160 ac.	BD	10.60	1,696	0.075	12	1.00	160.00	1	43
Highway Unit	113 ac.	BD	10.60	1,198	0.075	9	1.00	113.00	1	43
Highway-Kunkel	41 ac.	PD	36	1,476	0.075	3	1.00	41.00	1	16
Kunkel Iso.	70 ac.	BD	10.60	742	0.075	6	1.00	70.00	3	27
TOTALS				591,054		19,443		35,418.56		10,384

TOTALS BY PROJECT TYPE

[1]						
Water Troughs	(T)	6	3,000	150	0.06	
Fences	(F)	4.75 mi.	10,450	285	5.70	
Pipelines	(PL)	3.25 mi.	10,400	813	4.88	
Spring Developments	(SpD)	1	1,200	40	0.35	
Reservoirs	(R)	1	1,000	90	1.25	15
Pumping Stations	(PS)	1	1,200	600	0.10	600
Storage Tanks	(ST)	2	10,200	400	0.20	19
Wells-Equipped	(W)	2	15,000	1,000	0.02	
Plow and Drill Seed	(PD)	222 ac.	7,992	17	222.00	58
Rail, Aerial Seed	(RAS)	130 ac.	2,015	10	130.00	32
Burn and Drill Seed	(BD)	9,751 ac.	99,606	734	9,751.00	3,833
Spray and Drill Seed	(SD)	8,097 ac.	218,619	4,859	8,097.00	3,800
Spray	(S)	16,606 ac.	199,272	9,965	16,606.00	1,887
Drill Seed	(DS)	600 ac.	11,100	480	600.00	140
TOTALS			591,054	19,443	35,418.56	10,384

[2] Completion of projects is dependent on the level of funding available for project work.
Priority 1 - Scheduled for completion during FY83-FY85
Priority 2 - Scheduled for completion during FY86-FY87
Priority 3 - Scheduled for completion during FY88-FY89

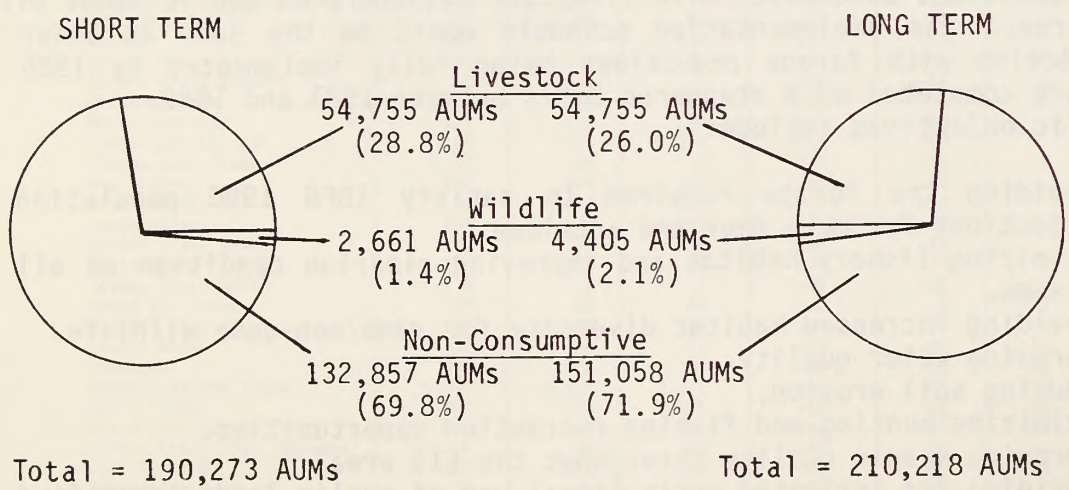
TABLE 2-10
PROPOSED MAINTENANCE - EXISTING LAND TREATMENTS - ALTERNATIVE B
(In Addition to Those in Alternative A)

Allotment	Developments Total Units	Type[1]	Estimated Development Cost Per Unit	Estimated Development Cost Total	Estimated Yearly Maintenance Cost Per Unit	Estimated Yearly Maintenance Cost Total	Acres Disturbed	Year Completed[2]	Expected AUM Increase
J. E. Baker-Lost Creek	197 ac.	SMS	12	2,364	.60	118	197	86	32
Kerr-Lost Creek	999 ac.	SMS	12	11,988	.60	600	999	83,86	344
Noh-White Rock	116 ac.	SMS	12	1,392	.60	70	116	86	34
Mule Creek-PVGA	294 ac.	SMS	12	3,528	.60	176	294	84	89
Horse Creek-PVGA	452 ac.	SMS	12	5,424	.60	271	452	83,84,88	94
Fuller	215 ac.	SMB	1.50	323	.075	16	215	87,89	76
Amsterdam-Kunkel	280 ac.	SMS	12	3,360	.60	168	280	87	70
Sharp-Lost Creek	83 ac.	SMS	12	996	.60	50	83	84	36
TOTALS				29,375		1,469	2,636		775
TOTALS BY PROJECT TYPE									
[1] Seeding Maintenance									
Spraying	(SMS) 2,421 ac.			29,052		1,453	2,421		699
Burning	(SMB) 215 ac.			323		16	215		76
TOTALS	2,673 ac.			29,375		1,469	2,636		775

[2] All maintenance is considered Priority 1 work. A seven-year schedule would be adopted to complete this work (dependent on the level of funding provided). Maintenance work would be completed prior to using funding for new projects.

1975-1980, plus the allocations on the two new allotments (see Proposed Action-Grazing Management). The active authorized livestock use and 6-year average active use levels by allotment are listed in Table 2-3.

The 2,661 AUM forage reservation for big game wildlife would be increased to 4,405 AUMs in order to meet the needs for 1990 population projections. The total vegetative biomass would be apportioned as follows:



GRAZING MANAGEMENT. Livestock would continue to utilize the 75 allotments under existing grazing systems, plus the two new allotments (Table 2-4). Existing AMPs (28 covering 31 allotments) would continue to be followed. No new AMPs would be implemented. The three buffer pastures (953 acres) would continue to be utilized as relief areas to accommodate livestock use that has temporarily been suspended from other allotments due to lack of forage caused by fire, drought or some other disaster. The 7,996 acres of isolated public land parcels would continue to be off-limits for livestock grazing.

BLM would provide the use supervision to minimize grazing trespass. Conversions in class of livestock would be permitted.

Grazing System	Present Grazing Management Public Land Acreage	Present Livestock Use (AUMs)
Rest-Rotation	54,828	19,344
Deferred Rotation	49,638	16,775
Seasonal Use	112,474	17,573
Custodial	6,362	1,063
Unallotted	7,996	549
Total	231,298	55,304

RANGE IMPROVEMENTS. Existing structural improvements would be maintained in a usable condition. New improvements would be initiated only as identified in existing AMPs.

Land treatment work would be initiated only in emergency cases such as after wildfire. Existing land treatments (seedings) would be maintained in order to continue current stocking rates. Increased AUMs would result from this maintenance but would not be allocated for livestock use. See Table 2-7 for an allotment breakdown of this maintenance.

ALTERNATIVE D
REDUCED LIVESTOCK USE

The overall objective of Alternative D is to maximize non-livestock uses and values, particularly wildlife and specific fisheries, recreation, watershed, and aesthetics, without complete disruption of the social and economic conditions associated with livestock husbandry on public lands within the EIS area. The implementation schedule would be the same as under the Proposed Action with forage reductions being fully implemented by 1986 and project work completed on a staggered basis between 1983 and 1989.

Specific objectives include:

- -- Providing the forage required to satisfy IDFG 1990 population projections for mule deer and antelope.
- -- Maximizing fishery habitat and improving riparian condition on all streams.
- -- Providing increased habitat diversity for game/non-game wildlife.
- -- Improving water quality.
- -- Reducing soil erosion.
- -- Maximizing hunting and fishing recreation opportunities.
- -- Improving scenic quality throughout the EIS area.
- -- Providing for irrigated agricultural use of public lands identified as suitable for such use (lease or sale).

FORAGE ALLOCATION. The initial and long-term authorized livestock vegetative allocation would be 34,783 AUMs (64 percent of the six-year average). See Table 2-11. This allocation reflects adjustments in periods of use required to maximize wildlife useage, removal of small acreages from grazing allotments in order to benefit wildlife or to protect watershed values, elimination of range projects designed to implement grazing systems or to provide additional

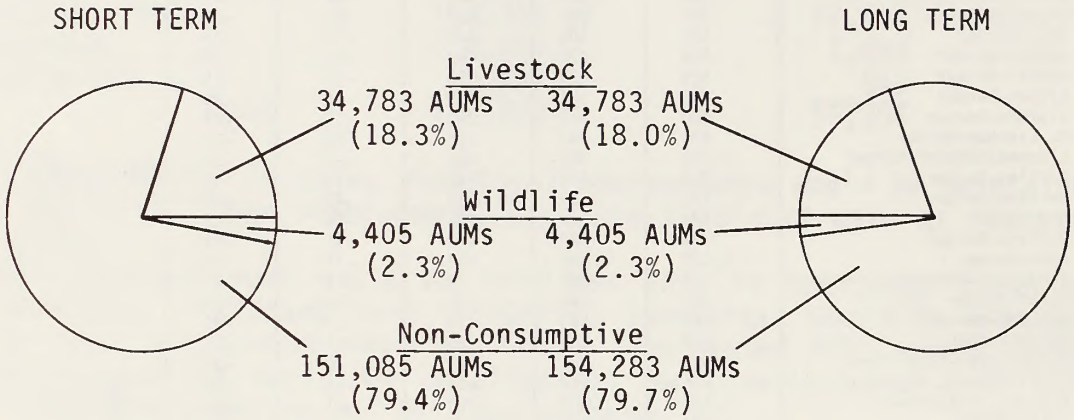
TABLE 2-11
PROPOSED FORAGE ALLOCATION - ALTERNATIVE D

Allotment	Authorized Livestock AUMs	6 Year Average Licensed Use	Proposed Livestock Grazing Use Initial & Long-Term	Proposed Livestock Adjustment (%) From: Authorized Use Initial & Long-Term	Proposed Livestock Adjustment (%) From: 6 Year Average Initial & Long-Term	Proposed Wildlife Use (AUMs) Initial & Long-Term
Babcock-Berger	420	336	252	-40	-25	
Buhl Group-Berger	1,904	1,290	774	-59	-40	
Kerr-Berger	1,500	1,285	771	-49	-40	
Ellis/Tews-Berger	5,000	4,357	2,832	-43	-35	
Chadwick-Berger	900	889	667	-26	-25	
Koch-Berger	660	506	380	-42	-25	
Kaster-Berger	910	670	469	-48	-30	
Kunkel-Berger	825	733	550	-33	-25	
Lassen-Berger	420	324	243	-42	-25	
Lierman-Berger	420	340	255	-39	-25	
M. Lierman-Berger	425	283	212	-50	-25	
Lierman/Wegener-Berger	1,050	908	681	-35	-25	
Lanting-Berger	2,000	1,434	932	-53	-35	
Martens-Berger	400	357	232	-42	-35	
Noh-Berger	3,223	2,734	1,777	-45	-35	
Parrott-Berger	798	789	473	-41	-40	
PVGA-Berger	3,520	2,750	852	-76	-69	
Schnitker-Berger	217	153	84	-61	-45	
Smith-Berger	210	144	108	-49	-25	
Wrigley-Berger	945	573	315	-67	-45	
Skeem-Berger	215	164	120	-44	-27	
J. E. Baker-Deep Creek	619	953	619	0	-35	
J. E. Baker-Lost Creek	296	353	229	-23	-35	46
Western Stockgrowers	2,114	2,600	910	-57	-65	2,977
Point Ranch	3,580	4,221	2,406	-33	-43	217
Whiskey Creek	1,976	4,209	3,157	+60	-25	9
Moore-Lost Creek	20	20	14	-30	-30	5
North Big Creek	40	160	160	+300	0	23
Kerr-Lost Creek	627	2,379	1,190	+90	-50	18
Noh-White Rock	333	253	190	-43	-25	27
Noh-Sections	220	291	218	-1	-25	55
Mule Creek-PVGA	430	1,177	871	+103	-26	96
Horse Creek-PVGA	637	1,015	812	+27	-20	51
Frahm-PVGA	36	157	63	+75	-60	39
South Mule Creek	226	257	180	-20	-30	76
Griff	592	1,280	965	+63	-25	
Peters	298	405	304	+ 2	-25	
Rock Creek-Coiner	50	50	50	0	0	
Courtnay	68	102	82	+21	-20	
Hub Butte-WSGA	576	1,142	782	+36	-32	
Salmon Tract Iso. (Danos)	10	8	4	-60	-50	
Hub Butte-Davis	180	196	88	-51	-55	
Fuller	354	353	230	-35	-35	
Greene Private	48	48	41	-15	-15	30
Salmon Tract-Stewart	4	6	5	+25	-17	
Soldier Creek	22	49	17	-23	-65	14
Barton-Schutte	121	312	250	+107	-20	
Jones-Goat Spring	66	478	359	+444	-25	
Kinsey-Lost Creek	50	40	0	-100	-100	5
West Kunkel	151	690	518	+243	-25	
Amsterdam-Kunkel	46	142	128	+178	-10	
Loughmiller	255	610	488	+91	-20	
Salmon Tract Ind.	10	10	9	-10	-10	
Lilly Grade	330	266	80	-76	-70	
Salmon Tract-McCoy	5	5	1	-80	-80	
South Big Creek	65	65	65	0	0	7
Randall Iso.	30	31	8	-73	-74	
Lemmon-Ring	30	24	12	-60	-50	19
Cameron	235	188	94	-60	-50	50
Schnell-Salmon Tract	1,535	4,633	3,011	+96	-35	39
Magic Common	480	723	564	+18	-22	83
Sharp Lost Creek	120	378	321	+168	-15	53
Salmon Tract Iso. (Stewart)	50	50	10	-80	-80	
Lost Creek-U2	380	381	229	-40	-40	148
Salmon Tract-U2	30	49	39	+30	-20	
Squaw Joe	476	898	706	+48	-21	86
Squaw Joe Iso.	204	240	173	-15	-28	
Ridge	999	882	609	-39	-31	222
Ridge Iso.	126	126	77	-39	-39	
Gravel Pit-Salmon Tract	170	153	61	-64	-60	
Section 22-Salmon Tract	40	44	18	-55	-59	
Highway Unit	11	18	8	-27	-56	
East Kunkel	13	92	62	+377	-33	
Highway-Kunkel	16	86	30	+88	-65	
Kunkel Iso.	30	108	86	+187	-20	
Hot Creek	0	47	40	0	-15	10
Tews Iso.	0	0	116	0	0	
Big Creek Iso.	0	0	45	0	0	
TOTALS	45,392	54,472	34,783	-23	-36	4,405

livestock forage, elimination of all maintenance on existing land treatments resulting in a loss of allocable forage, and conversion (by lease or sale) of 2,120 acres of public land to irrigated cropland.

Sufficient wildlife forage (4,405 AUMs) would be available to satisfy IDFG 1990 big game wildlife population projections.

Vegetation not allocated to livestock and wildlife would be available for non-consumptive uses such as watershed and aesthetics. To summarize:



Total = 190,273 AUMs

Total = 193,471 AUMs

GRAZING MANAGEMENT. Livestock would continue to utilize the existing 74 allotments under present management systems and two new allotments would be created as in the Proposed Action. Periods of use would be adjusted on some allotments, as indicated in Table 2-12, to provide maximum benefits for wildlife. One allotment, PVGA-Berger, would be reduced in acreage by the conversion of 2,120 acres to irrigated cropland. Conversions in class of livestock would be permitted only if they were determined to be beneficial to wildlife, watershed, and other non-consumptiave uses. Use supervision would be provided, as under each of the other alternatives.

The operational and monitoring aspects of grazing system management would be the same as described under Alternative A.

TABLE 2-12
PRESENT AND PROPOSED CHANGES IN PERIOD OF USE - ALTERNATIVE D

Allotment	Present	Proposed	Net Days Lost
Point Ranch	4/1 to 12/31	6/15 to 12/31	-75
Whiskey Creek	4/1 to 12/31	6/15 to 12/31	-75
Kerr-Lost Creek	5/1 to 10/31	6/15 to 10/31	-45
Noh-Sections	5/1 to 11/30	6/10 to 11/30	-40
Mule Creek-PVGA	5/1 to 11/30	6/10 to 11/30	-40
Horse Creek-PVGA	5/1 to 7/15 10/15 to 11/15	6/10 to 7/15 10/15 to 11/15	-40
Frahm-PVGA	5/1 to 11/30	6/10 to 11/30	-40
Kinsey-Lost Creek	5/1 to 10/31	6/10 to 10/31	-40
Magic Common	5/16 to 9/30	6/15 to 9/30	-30
Ridge	5/1 to 10/31	6/10 to 10/31	-40

RANGE IMPROVEMENTS. Existing range developments would continue to be maintained in a useable condition. No maintenance of existing land treatments would occur, resulting in these areas reverting to native range. No new livestock range developments or land treatments would be authorized except in emergency cases such as after wildfire.

The improvements identified for wildlife in the Proposed Action (Table 2-6) would also be developed under this alternative. An additional 14 miles of fencing is included to meet the objectives of improving riparian condition and maximizing fishery habitat, improving water quality and scenic quality, and providing increased habitat diversity for wildlife. These projects are listed in Table 2-13 and as shown on Map 2-3.

TABLE 2-13
PROPOSED WILDLIFE AND WATERSHED PROJECTS - ALTERNATIVE D
(In Addition to Those in Alternative A)

Allotment	Developments Total Units	Developments Type	Estimated Development Costs Per Unit	Estimated Development Costs Total	Estimated Yearly Maintenance Costs Per Unit	Estimated Yearly Maintenance Costs Total	Acres Disturbed Per Unit	Acres Disturbed Total	Priority[1]
J. E. Baker-Lost Creek	2 mi.	F	2,500	5,000	60	120	1.2	2.4	2
Western Stockgrowers	4 mi.	F	2,500	10,000	60	240	1.2	4.8	2
Point Ranch	5 mi.	F	2,500	12,500	60	300	1.2	6.0	3
Kerr-Lost Creek	2 mi.	F	2,500	5,000	60	120	1.2	2.4	1
Magic Common	1 mi.	F	2,500	2,500	60	60	1.2	1.2	1
TOTALS	14 mi.			35,000		840		16.8 ac.	

[1] Completion of projects is dependent on the level of funding available for project work.
Priority 1 - Scheduled for completion during FY83-FY85
Priority 2 - Scheduled for completion during FY86-FY87
Priority 3 - Scheduled for completion during FY88-FY89

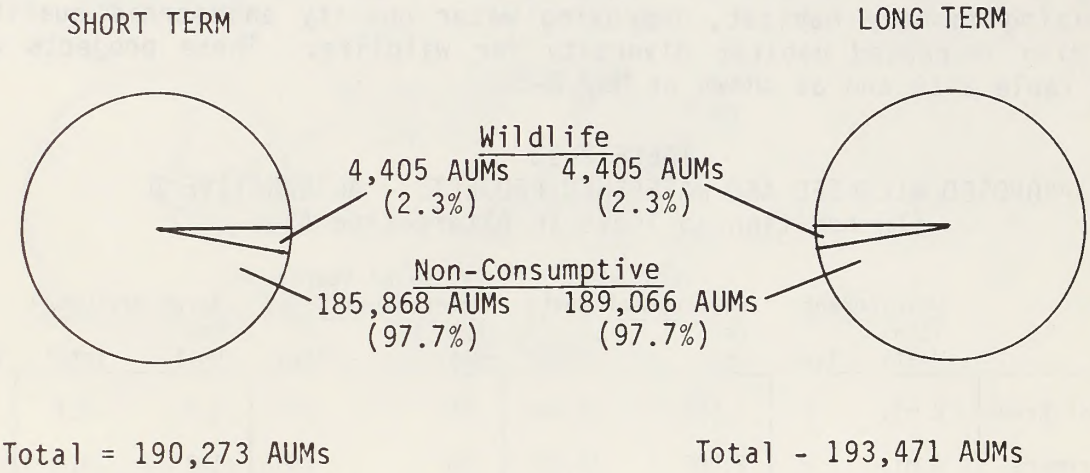
ALTERNATIVE E
NO LIVESTOCK GRAZING

The overall objective of this alternative is to maximize opportunity for the affected environment to return to its natural state. Toward that end, grazing by domestic livestock would be disallowed on public lands in the EIS area. BLM would continue to manage the public lands for all other non-livestock multiple use values, as mandated in the Federal Land Policy and Management Act (FLPMA) of 1976.

Specific objectives of Alternative E (No Livestock Grazing) include:

--Significantly decreasing potential soil erosion rates.
--Significantly improving the condition of riparian zones.
--Maintaining natural plant species diversity.
--Improving aquatic wildlife habitat throughout the EIS area.
--Restoring a more natural landscape to the EIS area, thus improving the visual resource.
--Ceasing livestock caused damage to cultural resource sites.

FORAGE ALLOCATION. All forage would be reserved for values other than livestock grazing. All grazing permits and cooperative agreements for livestock use on public lands would be cancelled, beginning with the 1983 grazing season. The total vegetative biomass would be apportioned as follows:



This apportionment of the vegetative resource would provide ample forage for IDFG 1990 big game population estimates on public lands.

GRAZING MANAGEMENT. All public land in the EIS area would be unallotted, and existing Allotment Management Plans would be cancelled. Livestock trailing permits would be issued as necessary to allow livestock movement to or from National Forest, State and privately owned lands. BLM would provide range use supervision.

RANGE IMPROVEMENTS. Existing range developments and land treatments would be maintained only if considered beneficial for non-livestock uses such as wildlife, watershed, or cultural resources. Any structural developments detrimental to other resource values would be removed. Livestock operators with investments in cooperative range development projects (e.g., fencing) would be entitled to appropriate salvage rights. No new range development projects would be undertaken unless necessary for non-livestock programs.

IMPACT SUMMARY

Based on the information and analysis presented in Chapters 3 and 4, certain environmental impacts have been identified as a result of the various alternatives. Table 2-14 provides a concise list of the expected affects of the Proposed Action and alternatives in relation to the existing situation or anticipated future trends.

RELATIONSHIP TO NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) GOALS

Section 101 of NEPA outlines a national environmental policy that all federal agencies are charged to carry out. In order to do this, the agecnies must use

TABLE 2-14

SUMMARY OF IMPACTS BY ALTERNATIVE

Elements Evaluated	Alternative A Proposed Action	Alternative B Increased Livestock Use	Alternative C Existing Stocking Level	Alternative D Reduced Livestock Use	Alternative E No Livestock Grazing
SOILS AND WATERSHED					
- Change in Potential Erosion Rates (Percent of EIS area):					
Increase	2%	34%	3%	1%	--
Decrease	71%	25%	51%	85%	91%
No Change	27%	41%	46%	14%	9%
- Estimated Sheet Erosion Rate: (Present.69 (Tons/Acres/Year)	.56	.73	.64	.50	.46
- Sufficient Recommended Watershed Cover (over 60%) as a percent of EIS area: (Present 64%)	76%	49%	74%	80%	82%
VEGETATION					
- Production:					
Total Biomass (Present 190,273 AUMs)	227,211	254,133	210,218	193,471	193,471
Percentage Change.	+19%	34%	+10%	+2%	+2%
- Trend (Acreage %):					
Upward (Present 24%)	43%	51%	36%	36%	35%
Static (Present 53%)	51%	40%	50%	18%	18%
Downward (Present 23%)	6%	9%	14%	46%	47%
- Condition (Acreage %):					
Excellent (Present 21%)	26%	29%	24%	0%	0%
Good (Present 23%)	42%	50%	29%	57%	57%
Fair (Present 39%)	20%	14%	30%	32%	32%
Poor (Present 17%)	12%	7%	17%	11%	11%
- Grazing Treatments (Acreage %):					
Before Seedrip (Present 58%)	54%	48%	58%	58%	0%
After Seedrip (Present 36%)	40%	46%	36%	36%	0%
Yearlong Rest (Present 6%)	6%	6%	6%	6%	100%
- Cover (Present 43%):	44%	43%	43%	46%	47%
- Riparian Areas:	7% of riparian vegetation fenced. Remaining area would remain static (70% in poor and fair condition) with benefits from grazing management and range improvments and negative affects from higher livestock numbers.	Higher livestock numbers would adversely affect riparian vegetation even with the increased management and range improvements.	Riparian vegetation would remain static (70% in poor and fair condition) with no new improvements, no increased stocking, and no additional management.	43% of riparian vegetation fenced. Some improvement in remaining, but livestock would still tend to congregate in these areas.	Improvement of all riparian vegetation would result from the elimination of livestock grazing.
- Threatened and Endangered Plants:	No Impact	Two sensitive and one threatened plant (proposed) could be adversely affected by increased stocking levels and land treatment.	No Impact	No Impacts.	No Impacts.

WILDLIFE

- Big Game:	Mule deer and antelope forage requirements for 1990 populations would be met. Conflicts would occur from livestock grazing on critical winter mule deer habitat after 9/30 (82% of critical range), on critical mule deer summer range prior to 5/15 (86%) and on antelope habitat between 4/15 and 6/15 (100%). 40% of critical mule deer range grazed under seasonal use. 3 guzzlers would benefit mule deer. Land treatments would have a variable effect, adverse in the short-term, beneficial in the long-term.	Mule deer forage requirements for 1990 would be 1,111 AUMs short of that needed. Antelope needs would be met. Livestock utilize of forage (shrubs) on critical mule deer winter range would not be limited to 20%. Same conflicts from seasons of use as under Proposed Action. Less than 1% of critical mule deer range grazed under seasonal use. Land treatments would adversely affect 45% of criti- cal mule deer winter range and 66% of critical summer range. No leave areas for cover, etc.	Sufficient forage available to meet 1990 population projections for mule deer and antelope. Late fall and early spring grazing would continue on 83% of critical mule deer winter range. 71% of critical mule deer range grazed under seasonal use. Minor adverse impact from land treatment maintenance.	Forage requirements for 1990 population projects would be met. Reduced conflicts from early spring grazing on 90% of mule deer critical summer range and on all antelope range. 71% of critical mule deer range grazed under seasonal use. Benefits would accrue from big game guzzlers and other wildlife projects.	Mule deer and antelope forage requirements for 1990 populations would be met. Critical winter range conflicts would be non-existant and carrying capacity could increase. In the long term, habitat may deteriorate as it approached climax with initial population increases declining.
- Upland Game:	Improved habitat on 19,317 acres where more forage and cover would be available (7% reduction in forage allocation from 6-year average on critical sage grouse habitat). Ground-nesting birds more susceptible to nest desertion or trampling. Increased sage grouse mortality from stress and nest desertion because of increased cattle use from grazing systems. Quality of 13% of sage grouse nesting/ broodrearing habitat would decline in the short term because of range treatments. Water developments beneficial.	Ground-nesting birds more susceptible to nest desertion or trampling. Riparian habitat condition to deteriorate further. Impact from rapid removal of succulent forbs in brood-rearing areas (15% greater allocation than present on critical sage grouse habitat). Increased sage grouse mortality from stress and nest desertion because of increased cattle use from grazing systems. 36% of critical sage grouse nesting/ brood-rearing habitat adversely affected by land treatments.	Current population levels would be maintained. Habitat presently in poor condition would remain so. Nest desertion/ trampling would continue at present levels. Minor impacts would result from seeding maintenance on areas of good sage grouse habitat (from reinvasion of sagebrush). No new water developments.	Improved nesting/brood-rearing habitat resulting in increased populations of upland game birds (36% grazing reduction on sage grouse critical habitat). Continued impacts on 57% of riparian habitat from concentrated livestock use. Nest desertion/trampling would continue but at lower levels. All species would benefit from construction of guzzlers. Lack of maintenance/new treatment in areas of dense, overgrown sagebrush may cause decline in sage grouse numbers.	Improved riparian habitat, more available succulent forbs. improved nesting/brood-rearing cover. Physical disturbance from livestock would cease. Populations would increase. In the long term, some sage grouse habitat would become choked and less productive, thus affecting population numbers.
- Aquatic Wildlife:	Continued adverse impacts on waterfowl nesting because of livestock use in riparian areas. Fisheries and furbearer habitat to improve slightly. 7% of riparian habitat would be fenced improving cover and food supply in these areas.	Significant impact on waterfowl nesting, furbearer, and fisheries habitat, and fisheries from 23% increase in grazing. Water quality would be adversely affected by land treatments near perennial streams, continued streambank erosion, and increased water temperatures.	Aquatic wildlife habitat would not improve. Riparian areas would continue to be heavily grazed. Streambank erosion would continue and water temperatures would increase, adversely affecting fisheries.	43% of the riparian vegetation would be fenced, thus improving aquatic wildlife habitat. Improved nesting cover would benefit waterfowl. Little improvement would occur in areas not protected.	Riparian vegetation would increase and streambank erosion decrease, benefitting both fisheries and furbearers. Waterfowl initially benefitted by improved nesting cover and no trampling, but overgrown vegetation would in the long term reduce waterfowl nesting.
- Threatened, Endangered, Sensitive, High Interest, and Non-Game Species:	Species associated with riparian areas adversely affected. Spring grazing would cause nest desertion by ferruginous hawks and trampling/abandonment of long-billed curlew and burrowing owl nests. Cover for and productivity of prey species adversely affected. Water developments benificial. Adverse impacts would occur from range improvements (reduced species diversity, cover, prey species numbers).	Impacts would be the same as under the Proposed Action, but would be more severe due to higher livestock levels and increased land treatment acreages.	The population and distribution of species would remain stable. However, a long-term downward trend in riparian habitat would adversely affect species such as the river otter and beaver.	Less competition for forage and less social interaction with livestock would beneift all species. Improved prey base. Sufficient grazing to maintain open areas for raptors to hunt and for nesting of long-billed curlew and burrowing owls. Some riparian areas (43%) would be fenced, but the remaining areas would continue to provide poor habitat. Water developments (guzzlers) would benefit all species.	Benefits from improved riparian habitat and increased herbaceous cover would increase diversity and populations. More stable prey base. Long-billed curlew and burrowing owl would be adversely affected by vegetative overgrowth at nest sites.

RECREATION					
- Recreation Visitor Days Projected to 1995:					
Fishing (4,720)	4,720	4,248	4,720	4,956	5,192
Upland Game Hunting (10,520)	11,572	9,468	10,520	12,098	11,046
Mule Deer Hunting (3,060)	3,060	2,415	3,060	3,366	3,153
WILDERNESS	No impacts on any proposed wilderness study areas would result from any of the alternatives.				
VISUAL RESOURCES	Minor impacts would result, but no changes in VRM classes would be expected.	Moderate impacts with potential for 1,621 acres of Class II and 2,434 acres of Class III to lower one VRM class.	No affect on visual resources.	Some improvement would result, but no changes would occur in VRM class designations.	More visual diversity and contrast, but no VRM class changes are anticipated.
CULTURAL RESOURCES	91% of known sites could be adversely affected.	94% of known sites could be adversely affected.	Present downward trend in condition of cultural resources would continue.	Present downward trend in condition of cultural resources would continue, but reduced livestock use would slow the rate on 94% of the known sites.	Elimination of livestock related impacts on cultural resources.
ECONOMICS					
- Rancher Income:					
Short Term	+$22,000	+$59,000	0	-$187,000	-$540,000
Long Term	+$158,000	+$321,000	0	-$187,000	-$540,000
- Range Improvements:					
Installation Costs	$633,000	$1,200,000	$164,000	$111,000	0
Maintenance Costs	$26,000	$44,000	$8,000	$3,000	0
- Recreation Related Income:	+$8,000	-$18,000	0	+$17,000	+$8,000
- Secondary Income Impacts:					
Short Term	+$11,000	+$24,000	+$1,900	-$28,000	-$87,000
Long Term	+$31,000	+$61,000	+$2,000	-$29,000	-$87,000
- Net Present Worth: (Regional)	+$1,500,000	+$2,800,000	+$89,000	-$2,100,000	-$6,400,000
- Employment Change:					
Short Term	+3	+7	+1	-11	-35
Long Term	+11	+22	0	-11	-35
SOCIAL CONDITIONS	Strengthened feeling of social well being.	Strengthened feeling of social well being.	Strengthened feeling of social well being.	Reduced sense of social well being.	Reduced sense of social well being.

all practicable means to ensure that their actions fulfill six specific goals. These goals are listed below and the relationship of the Proposed Action and Alternatives to these goals is discussed.

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.

The Proposed Action and all but Alternaitve B would tend to be beneficial to the basic resources of soil, water, and vegetation. However, under the Proposed Action some areas would be adversely affected by new range improvements, due to both construction and increased livestock concentrations. Alternative B would have moderate impacts on soil, water, and vegetation due to increased livestock use. No critical environmental concerns would be impaired or destroyed with the exception of approximately 400 acres of potential habitat for two sensitive plant species under Alternative B. Neither the Proposed Action or any of the alternatives foreclose future options for altering use of the lands involved.

2. Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.

The Proposed Action and all the alternatives except Alternative B would achieve this goal. A potential health problem, resulting from bacterial contamination of perennial streams, may exist (at varying levels) with all alternatives except the No Livestock Grazing alternative. The streams involved do not provide any domestic water supplies, but are used periodically by recreationists. Alternative B, in the long term, would create competition between livestock and mule deer for usable forage with a potential loss of mule deer populations resulting. No significant change of the aesthetics or cultural surroundings would result from any of the alternatives.

3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.

The potential exists for causing unintended consequences under the Proposed Action and all alternatives. A precise assessment of impacts cannot be completed until several years after implementation of the action. This would be accomplised through a rigorous monitoring program. Some undesireable consequences are associated with every proposed use. Alternatives D and E would cause varying economics hardships for many or all livestock permittees. Alternative B would result in competition bewteen livestock and mule deer for usable forage with potential losses in mule deer populations. Sage grouse and other species wouold also be adversely affected. In turn, recreation, economics, and social concerns would be affected. Impacts on riparian vegetation and other native vegetation would affect such resources as aesthetics and social well being.

4. Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, whenever possible, an environment which supports diversity and variety of individual choice.

Neither the Proposed Action nor Alternative C and D would hinder the achievement of this goal. Alternative B heavily favors livestock interests, jeopardizing all other resources. Alternative E would elimiate grazing activities, thus jeopardizing a long-standing human use of the public land.

Cultural and historic values would be protected under all proposals, though the increased stocking levels under the Proposed Action and Alternative B may result in some increased damage to cultural sites.

Diversity and variety of individual choice would be preserved under all but Alternative B and E. Providing maximum use to livestock would degrade the environment, limiting other values. Eliminating livestock grazing could cause some individual livestock operators to go out of business, thus affecting their variety of individual choice.

5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.

Human population growth would not be affected by the Proposed Action or any of the alternatives.

The Proposed Action is an attempt to balance all uses and users of the range resources so that no one interest or group beneifts to the detriment of another. Wildlife populations would be affected by Alternative B, eventually affecting the enjoyment of wildlife from both a consumptive and non-consumptive respect. Alternative E does not permit the livestock industry use of available resources, thus affecting red meat consumption.

The livestock operators' standard of living would be affected in various degrees by the alternatives. Under the Proposed Action and Alternative B, incomes would increase. No change would be expected if Alternative C were adopted. A loss of income would result from Alternatives D and E.

The Proposed Action and Alterantive C reflect the most balanaced use of resources, thus permitting the greatest sharing of life's amenities.

6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The quality and productivity of renewable resources such as vegetation, wildlife, and water would, in general, either not be affected or would be enhanced by the Proposed Action and Alternatives C, D, and E. Some adverse impacts, such as bacterial contamination of perennial streams, would be evident in localized areas at specific times. Alternative B would not enhance vegetation, wildlife, or watershed.

Watershed cover factors and soil erosion rates would improve with the Proposed Action and all but Alternative B. Cover factors would be lower and erosion rates higher than present rates if Alternative B were implemented.

Though wildlife populations, in general, would not be affected or would be enhanced by the Proposed Action and all but Alternative B, certain species could be adversely affected (e.g. fisheries, in the long term, would decline under Alternative A and C because of the lack of protection for riparian vegetation). Only Alternative B would have a uniform adverse affect on most wildlife species. Increased competition with livestock for usable forage, conversion of native habitat to seedings, and increased impacts on riparian vegetation and aquatic habitats would all add to adverse affects of Alternative B on wildlife.

CHAPTER 3

AFFECTED ENVIRONMENT

The Twin Falls EIS area lies within the Snake River Plain Sub-Region of the Columbia Plateau Physiographic Province. The northern portion of the area is characterized by a broad, gently undulating basalt plateau used primarily for crop agriculture and containing the major population centers of the EIS area. Deep canyons occur along both the Snake River and Salmon Falls Creek, as well as along some smaller tributaries. Somewhat steeper and more rolling, the southern portion of the unit is less typical of the sub-region. It still retains the basic volcanic features typical of the sub-region--numerous basaltic outcroppings and cliffs evident along upper Salmon Falls Creek and Shoshone Creek and in the tilted plateau-like benches of the area between the Shoshone Basin and Salmon Falls Creek. Elevation of public land in the EIS area ranges from 2,900 feet to 6,800 feet.

Native vegetation in the EIS area consists primarily of sagebrush-grass associations with scattered areas of juniper-grass associations. Localized riparian and meadow communities are found throughout the area, with various shrub species occurring locally at high elevations. Quaking aspen and cottonwood also occur locally throughout the area.

Climatic patterns in the EIS area are dominated primarily by maritime air masses originating over the Pacific Ocean. A continental climate prevails with temperatures ranging from an average maximum of 90°F in July to an average minimum of 18°F in January. Annual precipitation for the area is 8-14 inches, with up to 50 percent occurring as snow at the higher elevations.

The Snake River forms the northern border of the EIS area with Salmon Falls Creek (and Reservoir) forming the western boundary. Shoshone and Rock Creeks are the major streams within the area, though numerous ephemeral and smaller perennial streams are present. Several of the perennial streams support trout fisheries.

Total population within the EIS area is approximately 42,000. Major population centers include Twin Falls (approximately 22,500), Buhl (3,000), Filer (3,200), Kimberly (1,600), and Murtaugh (1,100). Outside these population centers, the demographic character of the EIS area is predominantly

rural/agricultural with major land uses including dry and irrigated farming, ranching, open space, and wildlife habitat.

Presently, 62 livestock operators are authorized to graze on public lands in the EIS area. These operators run a total of 13,000 sheep and 24,500 cattle requiring annual feed of 325,200 *Animal Unit Months** AUMs. Total active grazing preference in the EIS area is 45,392 AUMs or 14 percent of the permittees total needs. Actual licensed use over the past six years (1975-1980) is 54,472 AUMs or 17 percent of that required. Of the 74 existing allotments, 70 are grazed by cattle only, one by sheep only, and three by both cattle and sheep. The two proposed new allotments would be grazed by cattle only.

Over the years a network of range improvements has been developed to facilitate management of grazing livestock and to improve rangeland resource conditions. This network includes:

162 miles of pipeline	5 reservoirs	59 cattleguards
535 miles of fence	4 wells	20 spring developments
152 troughs	11 corrals	103,871 acres of seedings

Opportunity exists for expansion of this network to further enhance rangeland conditions and to make possible implementation of additional grazing systems.

SOILS AND WATERSHED

Soils. Because of the broad range in elevations, rainfall, and temperatures, the Twin Falls EIS area has many diverse and complex soil patterns (Map 3-1). Each soil series in the area was formed as a result of different dominating and diverse forces that are reflected in soil properties such as texture, drainage, degree of development, permeability and infiltration rates. Soil properities and slope, in turn, affect erodibility and soil productivity. For instance, soils found on the steeper mountain slopes exhibit higher erosion hazards than those found on more level terrain. The amount of vegetative cover also affects erodibility. Shallow soils, or those with poor or excessive drainage, can limit the types and quantities of vegetative cover at a given location.

A third order soil survey, which meets the National Cooperative Soil Survey standards, was conducted by the Soil Conservation Service in the EIS area during 1978, 1979, and 1980. This information is available at the Burley District Office. The soil survey was used for evaluating land use potentials, helping establish potential natural plant communities, establishing initial stocking rates, and predicting erosional responses.

When analyzing the effects of livestock grazing on soils, three major soil parameters are affected: soil compaction, soil erosion, and *soil productivity*. Some soils in the Twin Falls EIS area have already been affected by past use. Such intense grazing practices have historically occurred, affect density and decrease pore space, thus decreasing *infiltration rates*. The decreased infiltration rates from the compacted soil result in increased runoff, which increases the potential for soil erosion. Rauzi and Hanson (1966) found that infiltration rates and runoff are affected significantly by the intensity of grazing. Packer (1961) indicated that cattle trampling significantly increases soil erosion (through increased soil compaction and runoff) unless there is a 60-70 percent plant and litter cover to provide watershed protection against intensive summer storms. Presently, 39 allotments totaling 145,096 acres (63

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* *Italicized terms are defined in the Glossary.*

percent of total public land) has cover at or above the 60 percent level. Depleted plant cover and trampled soils are two main factors that contribute to soil erosion of range lands (Meehan and Platts 1978). Soil erosion affects the area being eroded as well as the waters receiving the eroded material. Erosion affects the topsoil, where most of the nutrients and organic material are found, reducing the fertility of the eroded soil. Sediment and nutrients can adversely affect water quality, fish habitat and reservoirs.

Some local areas of heavy livestock use presently occur around existing water troughs, riparian areas, salt licks, valley flats, and shady areas. These areas have been highly compacted and moderately eroded, which has resulted in soils with higher bulk densities, and lower organic matter content, smaller pore space, less infiltration, and lower productivity. Areas of decreased vegetation and litter cover are also more susceptible to erosion and increased runoff.

Soil erosion is the process of soil particle detachment and subsequent removal. Productivity of the eroded site and related quality of the drainage waters may be adversely affected by soil erosion. Erosion rates, as calculated in Table 4-1, are a function of many factors, predominantly the slope steepness and length, amount of bare ground, rainfall intensity, and soil erodibility. Table 4-1 shows the maximum potential erosion rates that have been estimated for each allotment, using the *Musgrave equation* described in the BLM Manual 7317 (see Appendix B for methodology). The Musgrave equation calculates the amount of soil movement in tons/acre/year on the landscape. These are general estimates and do not indicate absolute values, since no actual measurements have been made. It is also important to note that the Musgrave equation calculates rainstorm caused erosion and will not necessarily reflect snowmelt caused spring runoff erosion. Spring runoff may contribute significantly to the amount of soil erosion, especially at higher elevations in the EIS area.

Erosion condition classes for the allotments, based on *Soil Surface Factors* are shown on Map 3-2. These classes--stable, slight, moderate, critical and severe--are developed from field observations of soil movement, surface litter, gullies and flow patterns. In the EIS area, no severe or critical erosion condition classes were indicated.

Watershed. Two distinct watersheds are found in the EIS area. Shoshone Creek, Upper Deep Creek, and Whiskey Creek are major tributaries of Salmon Falls Creek. Streams in the remainder of the area flow directly into the Snake River. These watersheds and the major perrenial streams are shown on Map 3-3. Annual flow in all streams in the EIS area is highly variable (refer to URA overlay .35A1(b)).

With the exception of Salmon Falls Creek, all the streams originate in the South Hills or the hills of the Shoshone Basin. There are approximately 412 acres of riparian habitat bordering the major perennial and ephemeral streams (See Table 3-1). Approximately 70 percent of riparian habitat has been identified as being in fair or poor condition. In addition, *stream channel and gully erosion* problems are apparent in both McMullen Creek and North Cottonwood Creek on the Western Stockgrowers Allotment where deep cut banks have contributed to sloughing problems. South Fork of Deep Creek, Deep Creek, and Shoshone Creek, that pass through the Frahm-PVGA, Noh-Sections, Soldier Creek, Magic Common, Baker-Lost Creek, Kerr-Lost Creek, and Mule Creek-PVGA Allotments, also have bank cutting problems, but of lesser magnitude.

Agricultural use exerts the predominate influence on water quality in the EIS area. Grazing practices on public lands affect water quality by removing vegetation and compacting soils particularly in stream riparian zones which, in turn, lead to increased erosion, sediment yield and altered flow regimes.

Other water quality influences include bacteria, nutrients and temperature. According to the data that has been collected in the EIS area (refer to Twin Falls URA .45A7d), some of the streams exceed State of Idaho water quality standards for water temperature and bacteria levels. These streams include Upper McMullen Creek, Upper and Lower Cottonwood Creek, Fifth Fork of Rock Creek, Upper Deep Creek and parts of Salmon Falls Creek. Others may have problems but were not identified in the water quality inventory. The levels of some of these water quality parameters could be related to livestock grazing. Generally streams that are subjected to grazing animals would show increases in bacteria.

The largest water user in the EIS area is agriculture. Livestock on the public land also consume water, and, although availability is not a problem, distribution is, for the distribution of water exerts a significant influence over where livestock congregate.

TABLE 3-1
ACRES OF RIPARIAN/WETLAND HABITAT TYPE
BY CONDITION CLASS

Habitat Type	Condition Class: Excellent I (Acres)	(%)	Good II (Acres)	(%)	Fair III (Acres)	(%)	Poor IV (Acres)	(%)	Type Totals (Acres)	(%)
Riparian	56.43	13.7	61.97	15.0	274.18	66.5	19.53	4.7	412.11	85.8
Wet Meadow	10.49	17.9	10.71	18.3	30.66	52.3	6.79	11.6	58.67	12.2
Wetland	.14	1.4	3.44	35.2	4.13	42.3	2.05	21.0	9.76	2.0
Condition Totals	67.06	14.8	76.12	15.8	308.97	64.3	28.37	5.9	480.52	100%

VEGETATION

Vegetation Types. The Twin Falls EIS area has seven vegetation types: big sagebrush, low sagebrush, juniper, black greasewood, mid-grass (seedings), annuals, and riparian vegetation. Each vegetation type is based on the differences in the proportion and kind of plant species that predominate in a specific location. Determination of vegetation types was based on data from the 1979 inventory done according to *Soil Vegetation Inventorty Method* (SVIM). Table 3-2 shows the acreage, and Map 3-4, the location of each vegetation type in the EIS area. (See Appendix C for a list of plants commonly found in the major vegetative types and Appendix D for a description of SVIM.)

Riparian Vegetation. The riparian zones occurring in the Twin Falls EIS area constitute the most environmentally sensitive vegetative type present. There are 481 acres of riparian type, representing .2 percent of the total area (see

TABLE 3-2
ACREAGES BY VEGETATIVE TYPE

Allotment Name	Big Sagebrush Acres	Low Sagebrush Acres	Juniper Acres	Black Greasewood Acres	Mid-grass Acres	Annuals Acres	Riparian Acres
Babcock-Berger	0	0	0	0	607	0	0
Buhl Group-Berger	6B	433	0	0	3,964	0	0
Kerr-Berger	29	150	0	0	2,040	0	10
Ellis/Tews-Berger	1BB	0	0	0	9,540	0	0
Chadwick-Berger	3	0	0	0	1,357	0	0
Koch-Berger	0	0	0	0	94B	0	0
Kaster-Berger	145	0	0	0	1,365	0	0
Kunkel-Berger	5B	0	0	0	1,45B	0	0
Lassen-Berger	0	0	0	0	640	0	0
Lierman-Berger	55	0	0	0	665	0	0
M. Lierman-Berger	0	0	0	0	640	0	0
Lierman/Wegener-Berger	B5	0	0	0	1,959	0	0
Lanting-Berger	110	0	0	0	3,123	0	0
Martens-Berger	124	0	0	0	715	0	0
Noh-Berger	0	0	0	0	5,105	0	0
Parrott-Berger	76	0	0	0	1,402	0	0
PVGA-Berger	345	0	0	0	7,044	0	0
Schnitker-Berger	B0	0	0	0	320	0	0
Smith-Berger	0	0	0	0	320	0	0
Wrigley-Berger	414	0	0	0	1,541	0	0
Skeem-Berger	0	0	0	0	316	0	0
J. E. Baker-Oeep Creek	34	0	0	0	3,304	0	1
J. E. Baker-Lost Creek	1,561	514	0	0	511	0	12
Western Stockgrowers	15,011	2,4B3	107	150	4,99B	600	156
Point Ranch	9,498	13,443	0	0	10,439	0	73
Whiskey Creek	6,944	B83	0	0	10,869	0	23
Moore-Lost Creek	37	0	0	0	43	0	0
North Big Creek	1,004	0	0	0	0	0	7
Kerr-Lost Creek	2,B43	517	0	0	3,2B5	0	21
Noh-White Rock	761	1B2	0	0	654	0	0
Noh-Sections	739	715	0	0	0	0	1
Mule Creek-PVGA	4,31B	B30	87	0	1,760	0	19
Horse Creek-PVGA	2,2B7	325	0	0	70B	0	2
Frahm-PVGA	454	240	0	0	0	0	2
South Mule Creek	2,255	130	391	0	241	0	1
Griff	477	0	0	0	1,767	0	0
Peters	705	0	0	0	50B	0	0
Rock Creek-Coiner	145	0	0	0	14	0	0
Courtnay	B5	0	0	0	226	0	0
Hub Butte-WSGA	1,422	0	0	0	2,B46	0	0
Salmon Tract Iso. (Oanos)	36	0	0	0	0	0	4
Hub Butte-Oavis	320	0	0	0	4B0	0	0
Fuller	3B	0	0	0	1,032	0	0
Greene Private	261	0	0	0	59	0	1
Salmon Tract-Stewart	43	0	0	0	3	0	0
Soldier Creek	164	120	0	0	0	0	0
Barton-Schutte	71	0	0	0	540	0	0
Jones-Goat Spring	75	0	0	0	1,311	0	0
Kinsey-Lost Creek	1B5	131	0	0	0	0	1
West Kunkel	1B6	0	0	0	1,323	0	B
Amsterdam-Kunkel	956	0	0	0	144	0	0
Loughmiller	316	0	0	0	1,359	0	0
Salmon Tract Ind.	10	0	0	0	30	0	0
Lilly Grade	1,036	0	0	0	594	0	14
Salmon Tract-McCoy	0	0	0	0	35	0	0
South Big Creek	1,130	413	0	0	0	0	6
Randall Iso.	106	0	0	0	0	0	0
Lemmon-Ring	252	0	0	0	0	0	0
Cameron	1,072	305	0	0	0	0	1
Schnell-Salmon Tract	7,202	5B5	0	0	7,332	0	2
Magic Common	B,353	562	0	0	197	0	56
Sharp-Lost Creek	B49	0	0	0	153	0	0
Salmon Tract Iso. (Stewart)	2B0	0	0	0	0	0	0
Lost Creek-U2	1,907	0	0	0	127	0	3
Salmon Tract-U2	200	0	0	0	115	0	0
Squaw Joe	3,40B	1,949	0	0	572	0	7
Squaw Joe Iso.	2,162	B0	0	0	35	0	0
Ridge	6,602	0	0	0	221	0	0
Ridge Iso.	426	170	0	0	214	0	0
Gravel Pit-Salmon Tract	699	0	0	0	0	0	1
Section 22-Salmon Tract	148	0	0	0	0	0	12
Highway Unit	120	0	0	0	0	0	0
East Kunkel	32	0	0	0	248	0	0
Highway-Kunkel	446	0	0	0	0	0	1
Kunkel-Iso.	156	0	0	0	159	0	0
Hot Creek	84	0	0	0	74	0	0
Tews Iso.	517	0	0	0	235	0	0
Big Creek Iso.	320	0	0	0	0	0	0
	92,528	25,160	5B5	150	103,834	600	445

Table 3-1). Riparian vegetation area is found in the canyon bottoms along perennial streams, frontage on ponds and reservoirs, and surrounding springs.

Any source of water is a congregation point for livestock. Because of this, livestock have had a pronounced adverse effect on much of the riparian vegetation zones, through heavy utilization of vegetation and trampling.

Threatened or Endangered Plants. During the summer of 1979, the Twin Falls EIS area was inventoried for threatened or endangered plant species. One proposed threatened species Lepidum tetrapterus (Davis' playa mustard) was identified in the area. This species is currently not under any threat to survival in the EIS area according to Packard et al (1979).

Two species listed as sensitive in Idaho were also found during the inventory, Allium anceps (twin leaf onion), and Astragulus tetrapterus (wild milk vetch).

Condition. Ecological condition describes the existing vegetative composition of an area in relation to the climax (natural potential) plant community for the site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble the climax community.

Seeding condition describes the amount and productivity of seeded species. The ratings also take into account the amount of reinvading shrub species into the treatment area. The condition rating system for seedings is measured in terms of maximizing production of forage for livestock.

Condition data for the EIS area was collected as part of the 1979 SVIM inventory. Much of the seeding condition data was collected by resource area personnel in conjunction with the SVIM inventory. Table 3-3 and Map 3-5 show the existing condition ratings by allotment.

Trend. Range trend refers to changes in vegetation and soil characteristics resulting directly from climatic and other natural factors and from grazing intensity.

Two techniques, *plot trend and apparent trend,* were used to determine trend. Apparent trend data was collected as part of the 1979 SVIM inven- tory and was used on 51 allotments. Plot trend studies are permanently marked and read on a periodic basis to determine long-term trend. This method was used on 22 allotments. Both apparent and trend plot data were used on three allotments. Table 3-3 and Map 3-6 show trends on public land in the EIS area.

Production. The present total production (190,273 AUMs) in the EIS area is shown in Table 4-8. Production was determined from the SVIM inventory, actual use, and utilization data. Present total usable forage production (82,516 AUMs) is also shown in Table 4-8. This represents that portion of total vegetative production usable by all classes of grazing animals after the application of allowable use to the total vegetative production.

Changes in production can be altered by changes in condition, operation of grazing systems, land treatments, changes in use, climatic factors, etc. For purposes of the impact analysis in Chapter 4, it is assumed that all such variables would be taken into account in making projections with respect to future productivity of the areas involved. (The methodology used in making projections is explained in Appendix E).

It should be noted that climate plays a major role in providing forage. Studies on the Berger Resource Conservation Area show forage production difference of over 500 percent from one year to the next year with precipitation and temperature being the only variables.

TABLE 3-3
PRESENT RANGE CONDITION AND TREND

Allotment	Public Land Acreage	Ecological Condition			Seeding Condition				Trend		
		Good	Fair	Poor	Excel.	Good	Fair	Poor	Upward	Static	Declining
Babcock-Berger[1]	607	0	0	0	250	263	94	0	0	348	259
Buhl Group-Berger[1]	4,465	0	161	340	22	258	3,421	263	0	2,023	2,442
Kerr-Berger[1]	2,229	0	189	0	0	481	1,559	0	0	379	1,850
Ellis/Tews-Berger[1]	9,728	0	0	188	1,752	3,050	4,245	493	2,612	4,059	3,057
Chadwick-Berger[1]	1,360	0	0	3	992	259	64	42	17	1,153	190
Koch-Berger[1]	948	0	0	0	489	207	252	0	0	631	317
Kaster-Berger[1]	1,510	0	0	145	490	459	416	0	190	657	663
Kunkel-Berger[1]	1,516	0	0	58	1,068	0	390	0	0	1,121	395
Lassen-Berger[1]	640	0	0	0	471	0	169	0	0	507	133
Lierman-Berger[1]	720	0	0	55	628	0	0	37	174	546	0
M. Lierman-Berger[1]	640	0	0	0	503	111	26	0	0	503	137
Lierman/Wegener-Berger[1]	2,044	0	0	85	1,577	65	317	0	1,647	176	221
Lanting-Berger[1]	3,233	0	0	110	68	2,096	959	0	0	497	2,736
Martens-Berger[1]	839	20	19	85	396	156	143	20	23	546	270
Noh-Berger[1]	5,105	0	0	0	3,031	1,531	529	14	44	3,668	1,393
Parrott-Berger[1]	1,478	0	0	76	462	184	270	486	71	707	700
PVGA-Berger[1]	7,389	0	0	345	2,979	1,908	2,089	68	0	4,127	3,262
Schnitker-Berger[1]	400	0	0	80	33	0	287	0	0	104	296
Smith-Berger[1]	320	0	0	0	274	35	11	0	0	112	208
Wrigley-Berger[1]	1,955	0	0	414	30	0	1,274	237	29	991	935
Skeem-Berger[1]	316	0	0	0	179	84	53	0	0	195	121
J. E. Baker-Deep Creek[1]	3,339	0	35	0	1,290	801	1,213	0	60	2,061	1,218
J. E. Baker-Lost Creek[3]	2,598	17	1,724	346	0	0	511	0	541	2,057	0
Western Stockgrowers[2]	23,505	659	15,111	2,737	1,660	2,607	731	0	5,769	13,479	4,257
Point Ranch[2]	33,453	4,750	12,506	5,758	6,216	4,223	0	0	6,710	24,341	2,402
Whiskey Creek[2]	18,719	0	379	7,471	8,642	2,227	0	0	3,811	7,640	7,268
Moore-Lost Creek[2]	80	0	37	0	0	0	43	0	0	37	43
North Big Creek[2]	1,011	1,011	0	0	0	0	0	0	0	1,011	0
Kerr-Lost Creek[2]	6,666	241	1,462	1,678	319	835	2,131	0	70	3,598	2,998
Noh-White Rock[2]	1,597	943	0	0	79	575	0	0	38	1,559	0
Noh-Sections[2]	1,455	1,397	58	0	0	0	0	0	394	1,053	8
Mule Creek-PVGA[2]	7,014	781	3,659	814	0	1,409	351	0	3,180	2,710	1,124
Horse Creek-PVGA[2]	3,322	695	1,109	810	0	0	708	0	69	2,801	452
Frahm-PVGA[2]	696	0	200	496	0	0	0	0	119	421	156
South Mule Creek[2]	3,018	93	2,684	0	241	0	0	0	1,043	1,975	0
Griff[2]	2,244	0	74	403	1,767	0	0	0	1,707	537	0
Peters[2]	1,213	0	705	0	399	0	109	0	503	510	200
Rock Creek-Coiner[2]	159	0	0	145	14	0	0	0	0	159	0
Courtnay[2]	311	0	0	85	226	0	0	0	226	85	0
Hub Butte-WSGA[2]	4,268	0	0	1,422	1,156	298	1,392	0	1,706	1,901	661
Salmon Tract Iso.(Danos)[2]	40	0	0	40	0	0	0	0	0	40	0
Hub Butte-Davis[2]	800	0	0	320	130	0	350	0	0	320	480
Fuller[2]	1,070	0	0	38	241	756	35	0	0	123	947
Greene Private[2]	321	199	0	63	0	59	0	0	0	297	24
Salmon Tract-Stewart[2]	46	0	0	43	0	0	3	0	0	46	0
Soldier Creek[2]	284	0	162	122	0	0	0	0	146	56	82
Barton-Schutte[2]	611	0	0	71	0	540	0	0	540	60	11
Jones-Goat Spring[2]	1,386	0	75	0	506	805	0	0	0	1,386	0
Kinsey-Lost Creek[2]	317	0	317	0	0	0	0	0	0	104	213
West Kunkel[2]	1,517	0	24	170	1,010	265	48	0	916	601	0
Amsterdam-Kunkel[2]	1,100	103	771	82	0	144	0	0	0	1,018	82
Loughmiller[2]	1,675	0	296	20	1,161	198	0	0	1,091	584	0
Salmon Tract Ind.[2]	40	0	0	10	30	0	0	0	30	10	0
Lilly Grade[2]	1,644	0	1,050	0	0	0	594	0	0	0	1,644
Salmon Tract-McCoy[2]	35	0	0	0	0	0	35	0	0	35	0
South Big Creek[2]	1,549	0	1,549	0	0	0	0	0	161	1,388	0
Randall Iso.[2]	106	0	0	106	0	0	0	0	0	106	0
Lemmon-Ring[2]	252	0	252	0	0	0	0	0	0	252	0
Cameron[2]	1,378	507	868	3	0	0	0	0	682	693	3
Schnell-Salmon Tract[3]	15,121	14	3,330	4,445	3,925	2,670	737	0	10,979	3,293	849
Magic Common[2]	9,168	3,945	4,907	119	0	197	0	0	76	8,789	303
Sharp-Lost Creek[2]	1,002	24	636	189	0	133	20	0	268	539	195
Salmon Tract Iso.(Stewart)[2]	280	0	0	280	0	0	0	0	0	280	0
Lost Creek-U2[2]	2,037	187	1,626	97	127	0	0	0	1,273	571	193
Salmon Tract-U2[2]	315	0	0	200	115	0	0	0	80	235	0
Squaw Joe[2]	5,936	0	3,533	1,831	572	0	0	0	572	2,743	2,621
Squaw Joe Iso.[2]	2,277	0	407	1,835	0	0	35	0	35	433	1,809
Ridge[3]	6,823	5,147	1,140	315	0	0	221	0	4,993	1,420	410
Ridge Iso.[2]	810	339	257	0	0	0	214	0	739	71	0
Gravel Pit-Salmon Tract[2]	700	0	0	700	0	0	0	0	0	0	700
Section 22-Salmon Tract[2]	160	0	0	160	0	0	0	0	0	0	160
Highway Unit[2]	120	0	24	96	0	0	0	0	0	0	120
East Kunkel[2]	280	0	32	0	154	0	94	0	0	0	280
Highway-Kunkel[2]	447	0	0	447	0	0	0	0	0	0	447
Kunkel-Iso.[2]	315	0	67	89	159	0	0	0	0	235	80
Hot Creek[2]	158	42	0	42	0	74	0	0	0	84	74
Tews Iso.[2]	752	0	517	0	0	235	0	0	0	539	213
Big Creek Iso.[2]	320	320	0	0	0	0	0	0	0	320	0
	223,302 (100%)	21,434 (10%)	61,952 (28%)	36,082 (16%)	45,833 (20%)	30,198 (13%)	26,143 (12%)	1,660 (1%)	53,334 (24%)	117,656 (53%)	52,312 (23%)

[1] Plot Trend Data [2] Apparent Trend Data [3] Plot and Apparent Trend Data

Suitability. Suitability refers to forage production capabilities and livestock grazing on a sustained yield basis wherein damage to soil and vegetation does not occur. Many areas can be grazed by livestock, thus rendering them usable, but some may not be suitable for grazing on a long-term basis because of the resulting damage to the area or adjacent areas.

Criteria used to determine range suitability for livestock grazing in the EIS area include:

1. Steepness of slope (50 percent or less)
2. Distance from water (2 miles or less)
3. Soil erosion (Soil surface factor 60 or less)

Steepness of slope accounts for all unsuitable land in the EIS area.

Table 3-4 displays acreages of suitable and unsuitable livestock grazing rangeland in the EIS area (on those allotments with unsuitable acreage). Since alternative proposals would not alter the present suitability determinations, no further analysis of suitability will be made in this document.

TABLE 3-4
Unsuitable Acreage By Allotment[1]

Allotment	Acres Suitable	Acres Unsuitable	Allotment	Acres Suitable	Acres Unsuitable
J.E. Baker-Lost Creek	2,552	46	Lemmon-Ring	224	28
Western Stockgrowers	22,835	670	Cameron	1,365	13
Point Ranch	32,938	515	Magic Common	8,957	211
Noh-Sections	1,445	10	Sharp-Lost Creek	999	3
Mule Creek-PVGA	6,942	72	Squaw Joe Iso.	5,815	121
Frahm-PVGA	693	3	Ridge	2,252	25
South Mule Creek	3,008	10	Ridge Iso.	6,726	97
Rock Creek-Coiner	107	52			
Randall Iso.	96	10	Total	96,954	1,886

[1] The remaining 62 allotments contain no unsuitable acreage.

Cover. Vegetative cover is mulch and aerial parts of plants combined. According to Stoddart, Smith and Box (1975), cover plays an important part in a plants ability to produce forage. Reduced infiltration results as vegetal material is decreased, causing increased runoff, reducing precipitation effectiveness. At present, vegetative cover throughout the EIS area averages 43 percent a high level for rangeland (see Table 4-9).

Cover was estimated with *step-point transects* at clipping points, range condition write up locations, and trend plot data.

WILDLIFE

The Twin Falls EIS area contains numerous species of birds, mammals, fish, reptiles, and amphibians. A complete list of species is available at the Burley District BLM Office.

Big Game. Mule deer and pronghorn antelope are the two major big game species found in the EIS area. Map 3-7 shows the seasonal distribution of mule deer. Estimated dietary composition by season of use for mule deer is analyzed in

TABLE 3-5

ESTIMATED POPULATIONS OF BIG GAME ANIMALS BY ALLOTMENTS[1]

	Mule Deer			Antelope		
Allotment Name	Apr-Jun	Jul-Oct	Nov-Mar	Apr-June	Jul-Oct	Nov-Mar
J.E. Baker-Lost Creek	8	8	30			
Western Stockgrowers	200	65	1,265			
Point Ranch	20	20	85	6	8	2
Moore-Lost Creek	2	2	2			
North Big Creek	15	15	0			
Kerr-Lost Creek	0	15	0			
Noh-White Rock	6	6	10			
Noh Sections	20	20	20			
Mule Creek-PVGA	30	40	30			
Horse Creek-PVGA	5	5	30			
Frahm-PVGA	10	15	20			
South Mule Creek	15	15	35			
Greene Private	6	6	10			
Soldier Creek	2	2	6			
Kinsey-Lost Creek	2	2	2			
South Big Creek	5	5	0			
Lemmon-Ring	6	6	6			
Cameron	25	5	30			
Schnell-Salmon Tract	5	5	19			
Magic Common	10	20	30			
Sharp-Lost Creek	10	10	20			
Lost Creek-U2	60	10	65			
Squaw Joe	10	10	50			
Ridge	120	120	60			
Hot Creek	3	3	5			
TOTALS	595	420	1,830	6	8	2

[1] For mule deer, aerial winter counts, coupled with IDFG's population estimate on herd unit and observation reports served as the basis for Burley District estimates. No population estimates were made on private, state, or federal lands not administered by the BLM.

Mule deer are widespread and mobile throughout the EIS area. They do not respect allotment boundaries, and their use patterns vary a great deal on both seasonal and yearly basis.

The antelope estimate is based on actual on-the-ground and aerial observations by IDFG and BLM personnel.

land-use planning documents available in the Burley District BLM Office. Habitat acreage for mule deer (allotted and unallotted) is shown in the following table:

Mule Deer Habitat Acreage

Total Yearlong Acreage	Total Winter Acreage	Critical Winter Acreage	Critical Summer Acreage
100,728	56,420	36,820	4,820

Population levels for mule deer are shown in Table 3-5. A high mule deer population trend exists in the area due to hunting management by the IDFG.

There are 24,480 acres of public land within the area which have been identified as yearlong pronghorn antelope range. The population level is shown in Table 3-5. Information concerning this population and its trend is limited to infrequent sightings.

Upland Game. Most upland game populations found in the area remain at fairly stable levels. Among various upland game species, mourning dove, Hungarian partridge, Nuttall's cottontail, and pygmy rabbits are found throughout the EIS area in various habitat types. Chukar partridge are found in steep, rugged canyons with talus slopes and rocky outcrops. Quail (mountain and valley) are found in brushy draws and riparian areas. The ring-necked pheasant, a popular upland game species, is found adjacent to agricultural areas mainly in the northern half of the EIS area. Sage grouse, another important game bird, are found mainly in the southern portion of the EIS area. There has been a general decline in sage grouse numbers due to a loss of habitat through conversion of sagebrush lands to croplands and grasslands and livestock overgrazing in *critical nesting and brood-rearing* areas involving many riparian sites. Map 3-8 shows the seasonal distribution of the ring-necked pheasant and sage grouse.

Aquatic Wildlife. Aquatic habitats are important to many furbearing species. Current inventory and harvest information in the area is scarce.

Shorebirds and waterfowl frequent many streams, reservoirs, and other riparian locations on BLM-administered land in the area. These sites serve as important nesting, brood-rearing, and migratory resting areas. Heavy livestock grazing on wetlands effects composition and density of native marsh vegetation which, in turn, has an impact on waterfowl nest density and nesting success.

Map 3-9 shows portions of four streams in the EIS area which provide approximately 60.19 miles of habitat for resident game fish populations. Species include rainbow, brook, cutthroat, and brown trout, smallmouth and largemouth bass, yellow perch, and whitefish. The trout fishery is maintained via a stocking program by the Idaho Department of Fish and Game.

A stream survey completed by IDFG during summer of 1979 (Gamblin 1980) determined stream conditions using a modified version of the standard BLM survey procedure. See Appendix F for an explanation of the methodology used. Survey results shown on Table 3-6 indicate that 30 percent of trout habitat is in poor to fair condition.

The influence of the riparian area is not limited to those animal species restricted in distribution to streamside vegetation. Removal or manipulation of riparian habitat, such as in overgrazing or land treatment, would not only adversely affect riparian species, but wildlife productivity in adjacent habitat would also be depressed.

Threatened, Endangered, Sensitive, High Interest and Non-Game Wildlife Species. In late fall, bald eagles (an endangered species) migrate into the EIS area and remain through winter. They can be found scattered in small numbers throughout the area during this time. No significant impacts will occur with this species. It will not be discussed further.

Sensitive species are those whose restricted range, habitat requirements, or low population numbers, make them vulnerable to elimination if adverse impacts on populations or habitat occur. The BLM and IDFG jointly determined the Idaho sensitive species list. The following six sensitive wildlife species are known to inhabit the area: (1) The river otter is found along streams, reservoirs, and other riparian areas; (2) The bobcat is found near rimrock, brushy areas, and mountains; (3) The ferruginous hawk is primarily found in sagebrush/grass environments; (4) The long-billed curlew is a ground nesting bird of open, grassy areas on level to rolling hills; (5) The western burrowing owl is found in sagebrush/grass environments in flat to rolling country; (6) The mountain quail is associated with wooded draws, valleys and sagebrush habitat types. The river otter and mountain quail are rarely seen. Bobcat and ferruginous hawk numbers are low. The long-billed curlew and western burrowing owl are common migratory residents. No information on population numbers is available.

High public interest species include eagles, hawks and owls. These species are widespread in the area.

Non-game wildlife are species for which no hunting seasons or harvest is allowed. These species make up the bulk of the fauna in the area. Many of them are dependent upon wetland-riparian zones.

TABLE 3-6
HABITAT CONDITIONS OF FISHERY STREAMS ON PUBLIC LAND IN THE EIS AREA

	Miles of Stream by Condition Class			
Stream	Excellent[1]	Good	Fair	Poor
Fifth Fork of Rock Creek	----	----	1.0	----
McMullen Creek	----	----	3.56	----
Salmon Falls Creek	7.74	29.83	2.9	4.78
Shoshone Creek	3.98	.46	.8	5.14
Total Miles	11.72	30.29	8.26	9.92
Percent of Total	19.5	50.3	13.7	16.5

[1] The excellent areas are areas in canyons where cattle cannot frequent.

RECREATION

The public land within the EIS area provides a diverse choice of recreation opportunities. Activities that would be directly affected by the Proposed Action or the alternatives include off-road vehicle (ORV) use, hunting, and fishing. Other recreational activities could be indirectly affected but, impacts would not be significant and are not specifically analyzed in this EIS. No developed recreation sites would be significantly affected by the Proposed Action or alternatives.

Table 3-7 shows the projected visitor days of recreation use for affected activities in the area. Fishing use levels are broken into stream and reservoir fishing. Only stream angling will be affected by the various levels of grazing. Reservoir fishing is included in the table for comparison.

Two sets of use figures are listed in the table for mule deer hunting. One set indicates projected hunter days actually on public land does not reflect herd dependency on public land. Approximately 56,000 acres of public land provide winter habitat for mule deer. Since few deer are found in these areas during the hunting season, the importance of public land is not reflected in the first set of use figures. The second set of hunter day figures accounts for this dependency.

Off-road vehicle use projections include both motorcycle and 4-wheel drive recreation. Snowmobiling was not included, for it will only be affected to a minimal degree.

TABLE 3-7

PROJECTED RECREATION USE IN THE EIS AREA IN VISITOR DAYS[1]

Recreation Activity	1979	1995
Fishing		
Stream	3,912	4,720
Reservoir	28,350	32,800
Hunting		
Mule Deer	135	206
Mule Deer	2,415	3,060
Upland Game	5,206	10,520
Off-Road Vehicle Use	10,286	15,804

[1] Visitor use projections taken from Planning Area Analysis for the Twin Falls Planning Unit.
Two definitions for a visitor day are used:

a) One hunting or fishing trip, be it one hour or twelve hours in length, is equal to one visitor day (Idaho Department of Fish and Game).

b) For all activities except fishing and hunting, a visitor day is equal to 12 hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons (BLM Manual 6000 - Recreation Management).

WILDERNESS

One wilderness study area (WSA) is located within the EIS area. This WSA, the Lower Salmon Falls Creek Unit (17-10), is along the western boundary of the area. The study area would not be affected by any action contained within the EIS and will not be discussed further.

VISUAL RESOURCES

The public land in the EIS area has been inventoried to determine the quality of the visual resources. Evaluation of the land was based on landform, vegetation, water, color, scarcity, influence of adjacent scenery, and cultural modifications *(intrusions)* in accordance with the visual resource management (VRM) system presented in BLM Manual 8410-8411. For information on the visual resource inventory, see Appendix G.

The VRM system provides for management of the visual resources to prevent degradation. Management classes based on scenic quality, *sensitivity level,* and *distance zone* are established to provide appropriate objectives for management of visual resources. The acres and percentage of public land in each VRM class in the EIS area are shown in the following table. Locations of the classes are shown on Map 3-10.

Acres and Percent of Public Land
Contained in Each VRM Class

	Acres	Percent
Class I	1,532	0.7
Class II	12,693	5.5
Class III	32,815	14.2
Class IV	184,246	79.6
Class V	12	- -

The objectives of the VRM Classes:

Class I - Provides primarily for natural ecological changes, though limited management activities may occur. This classification applies to wilderness areas, some natural areas, wild portions of wild and scenic rivers, or other similar situations.

Class II - Provides for changes in the basic elements (form, line, color, texture) as a result of management activity. These changes should not be evident in the characteristic landscape.

Class III - Provides for visual contrasts caused by a management activity. Such contrasts may be evident, but should remain subordinate to the existing characteristic landscape.

Class IV - Provides for contrasts which may attract attention and be dominant features in the landscape, though they should repeat the basic elements of the characteristic landscape.

Class V - Identifies areas where change is needed. Naturalistic character has been disturbed to a point where rehabilitation is needed to bring the area back into character with the surrounding landscape. This is an interim, short-term classification until one of the other objectives can be reached through rehabilitation and enhancement.

CULTURAL RESOURCES

A total of 138 cultural resource sites have been recorded on public lands in the Twin Falls EIS area. Site data has been compiled from Class II and Class III inventories. A stratified, random sample inventory (Class II) was conducted in 1979/1980. At that time 23,140 acres (10 percent of the public land in the area) was examined. Numerous intensive, site-specific inventories (Class III) have been conducted in the area. Some 10,860 acres (4.7 percent of the public land) has been examined in this manner. A detailed description of inventory procedures and known cultural resource site data can be found in the Twin Falls URA Step 3, located at the Burley District Office.

None of the sites on public land are currently listed on the National Register of Historic Places, although the Milner segment of the Oregon Trail (National Historic Trail) may be included in the forthcoming Oregon Trail Historic District nomination. This segment of the trail in the EIS area is on unallotted public land, and thus will be unaffected by any grazing alternative. Eight National Register sites are listed within the area. However, they are all privately owned historic sites in or near Buhl, Twin Falls, and Murtaugh, and are not being affected by livestock grazing on the public lands.

Known cultural resource sites on public land in the area are generally in good condition. That is, impacts have been minimal to moderate. Of 130 sites for which the condition was known, 81.5 percent were in good condition. The remaining 24 sites had been severely affected and were in poor condition.

Of the 68 sites in the area for which there is sufficient data on agents of deterioration, 48.5 percent have been damaged by livestock grazing and associated activities, i.e., trampling, range development projects, and vegetation manipulation.

Following is a list of allotments which contain known sites:

Allotment	No.	Allotment	No.
Buhl Group-Berger	2	Lilly Grade	2
Kerr-Berger	3	Schnell-Salmon Tract	7
Ellis/Tews-Berger	1	Magic Common	3
Chadwick-Berger	1	Squaw Joe	5
Western Stockgrowers	7	Squaw Joe Iso.	2
Point Ranch	40	Ridge	2
Whiskey Creek	24	Gravel Pit-Salmon Tract	1
North Big Creek	1	Tews Iso.	1
Kerr-Lost Creek	7		
Mule Creek-PVGA	4		
Frahm-PVGA	2		
South Mule Creek	5	Magic Stock Driveway	3
Hub Butte-WSGA	1	Unallotted	7
West Kunkel	7	Total	138

ECONOMICS

Twin Falls County was used as the base area or economic region in this EIS. The EIS area lies entirely within Twin Falls County.

The livestock industry would be the industry most affected by the various alternatives. According to the 1980 Idaho Agricultural Statistics, there were

14,800 stock sheep and lambs and 130,500 cattle and calves in Twin Falls County as of January 1, 1980. Total feed requirements would be 1.6 million Animal Unit Months (AUMs). Permittees in the area run 13,000 sheep and 24,500 cattle with annual feed requirements of 325,200 AUMs. The area has a total active preference of 45,392 AUMs or 14 percent of the permittees' total needs. The six-year average use is 54,472 AUMs or 17 percent of the permittees' total needs.

Income. Total regional (Twin Falls County) income was $268 million in 1978. This is an 8 percent growth in real money terms (after adjusting for inflation) since 1975. Non-farm industries accounted for 85 percent of 1978 income. Non-farm industries grew by 16 percent since 1975. Statewide total income was up 14 percent since 1975 with non-farm industries up 15 percent. The dominant non-farm industries in Twin Falls County are manufacturing (14 percent), retail trade (13 percent), services (13 percent), and government (12 percent) (Bureau of Economic Analysis 1980).

Total farm income in the region was $40 million in 1978. This is a 21 percent decline since 1975 (in real money terms). Statewide farm income declined 5 percent during this period. Farm income accounted for 15 percent of the county personal income, making agriculture the number one industry (Bureau of Economic Analysis 1980).

Total livestock income in the county was $22 million in 1978. This is based on the assumption that the relationship between farm and livestock income is the same as the relationship between farm and livestock receipts. In 1978 livestock receipts accounted for 56 percent of farm income (Bureau of Economic Analysis 1981).

To determine what impact the proposal and alternatives would have on rancher income, ranch budgets were prepared by the Economics, Statistics, and Cooperatives Service of the U. S. Department of Agriculture. Budgets were prepared for six groups of cattle operators. Sheep operations were not budgeted separately due to the small number of sheep permittees in the area. The results of this budgeting effort are as shown in Table 3-8. The full budgets have been reproduced in Appendix H along with an explanation of the process used. The table shows that income generated by the permittees' ranches is about $824,000 (before accounting for returns to land). This represents 4 percent of the county's income, and less than one percent of the total county personal income.

Employment. Total county employment was 25,550 in 1978. Retail trade was the largest employee accounting for 15 percent of total employment. Government, manufacturing and agriculture are the next largest employee with 14, 13 and 13 percent respectively (Bureau of Economic Analysis 1980). Since 1975 employment in the county has risen 13 percent. Farm employment has risen 7 percent. This compares with statewide increases of 17 and 7 percent respectively. That portion of farm employment attributable to the livestock industry is not identifiable.

Ranch Consolidation and Conversion. There has been very little ranch consolidation or conversion of ranches to non-ranching activities in the EIS area.

Capital Position. As early as 1925, it was recognized that the annual value of the federal grazing privilege was being capitalized into rancher property. "It is argued that long use of the range in connection with the early settlement of

TABLE 3-8
RANCH BUDGETING RESULTS

Group	Number of Permittees	Returns above Cash Costs	Total[1] Income
1. 0-99 head spring, summer and fall use	6	$ 3,509	$21,054
2. 100-299 head spring, summer and fall use	17	$ 7,454	$126,718
3. 300 + head spring, summer and fall use	9	$14,040	$126,360
4. All sizes spring use only	12	$ 9,943	$119,316
5. All sizes spring and fall use	11	$14,939	$164,329
6. All sizes year-round use	7	$37,979	$265,853
Total	62		$823,630

[1] Number of permittees X returns above cash cost.

Source: Economics, Statistics, and Cooperatives Service
U. S. Department of Agriculture
Fort Collins, Colorado
October 1980.

agricultural lands has resulted in capitalizing the values of public pasturage as part of the value of the ranch..." (USDA 1925).

A report published by the Utah State University Experiment Station stated, "there was nothing illegal or unethical in the fact that grazing permits took on a value; ranchers just reacted to an economic situation that was created by government policy. Permit values rose because ranchers who had grazing permits were capturing economic rents in the form of low cost grazing; i.e., the grazing fee and recognized non-fee costs did not equal the value of the grazing to ranchers. Thus, the authorization to use the federal lands and the associated economic rents were capitalized into rancher-owned assets. This value could show up either as a permit value or as an increased value of the commensurate property" (Nielson 1971).

BLM's position on permit values is based on very explicit language in the Taylor Grazing Act which states "so far as consistent with the purposes and provisions of this Act, grazing priviledges recognized and acknowledged shall be adequatly safeguarded, but the creation of a grazing district or the issuance of a permit pursuant to the provisions of this Act shall not create any right, title, interest, or estate in or to the lands (Sec. 3)." Thus, any capitalized value associated with grazing permits has no legal basis and, as a result, a rancher has no legal recourse to obtain compensation for loss of this value.

SOCIAL CONDITIONS

Unstructured interviews were conducted within the Twin Falls EIS area in the Fall of 1980 in an effort to identify general social conditions of the area, as well as attitudes and values that may be affected by BLM land-use

decisions. The 106 respondents represent recreational interests, local businesses, conservation groups, ranchers, local citizens, and local elected officials, as well as representatives of state and federal agencies. The respondents did not answer specific questions, but were encouraged to discuss issues of concern to them. The small sample size and method of data collection precludes precise determination of the extent to which values are held by the community. Rather, the objective is to illustrate which values related to multiple use management appear to be shared by many people, and which are likely to clash with possible BLM actions.

General social values are expressed through satisfaction with communities and neighborhoods, educational facilities, health services, economic climate, recreational opportunities, religious instititions, etc.

One major consideration is the way people perceive their social situation within the community. Almost all respondents indicated that they felt that the Twin Falls area is a good place to live and expressed satisfaction with the quality of life in the area which indicates strong feelings of social well being. Another consideration is how a person's economic situation effects their sense of social well being. There are two distinct groups in the study area whose social well being is affected differently by their economic situation: (1) those whose livelihood is derived from ranch related activities; and (2) those who derive their livelihood from non-ranch activities. Understandably, individuals whose economic situation could be substantially changed by BLM decisions would feel less secure.

Multiple use on public lands is viewed as potentially threatening to those deriving their income from ranching. About half of the respondents felt that multiple use should consider needs of people above needs of wildlife, with slightly less than half of those contacted favoring individuals making a living from the land receiving consideration for future use ahead of non-income producing users. In spite of this, more than 3/4 of those contacted feel no single use should receive special consideration. These desires are contradictory at first glance, but are indicative of the basic conflict of income-producing users versus pleasure users. It seems that equal treatment for all, through multiple use planning, is desired in varying degrees by most users, but is recognized as a goal that cannot always be obtained. This is further demonstrated by the fact that 86 percent of the respondents felt it important to help ranchers maintain their way of life. Considering only 16 percent of all respond were ranchers, it is obvious that there is a great deal of awareness and concern for the maintenance of this unique lifestyle among most residents of the study area.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

The organization of this chapter integrates major headings from the two preceding chapters. Like Chapter 2, it proceeds alphabetically by alternative. Within each alternative are analyses of the major resources (e.g., Soils, Water Resources, etc.), which appear here in the same order as they were considered in Chapter 3. The intent is to identify as closely as possible, the kinds, degrees and specific causes of environmental impacts expected under each of the five alternatives.

Three basic components of the Proposed Action may affect the environment in the Twin Falls EIS area: 1) Vegetative Allocation, 2) Grazing Management, 3) Range Development. For purposes of impact analysis, these three impact-causing components are assumed to be discrete. Also assumed, is that the same components are appropriate categories for analysis under all alternatives, even in cases where their relevance is merely comparative.

Comparison is fundamental to environmental assessment. Alternatives are evaluated by comparing predicted impacts. Predicted impacts are calculated by comparing the "existing situation" with those projected to exist in the short- or long-term future. As used in this document, "short term" refers to the period 1983-89, "long term" to the period 1990-2000.

Vegetative Allocation is primary to livestock grazing management. As a basis for impact prediction, *Animal Unit Months** (AUMs) intended for allocation to livestock under Alternatives A, B, D, and E are measured against the existing situation (Alternative C). It is assumed that the existing situation, where livestock grazing is concerned, refers to the level of actual on-the-ground use, as established by livestock permittees during the six-year period 1975-1980, rather than to the existing level of active *grazing preference*. Thus, a figure of 54,472 AUMs (six-year average licensed use) becomes the standard against which the proposed and alternative allocations are compared.

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* *Italicized terms are defined in the Glossary.*

Grazing Management refers to systems, *treatments* and periods of use as distinct from allocation. Where Alternatives A (Proposed Action), B (Increased Livestock Use), and D (Reduced Livestock Use) are concerned, it is assumed that BLM would have the funding and manpower necessary to implement and maintain the grazing management proposed. In the case of Alternative C, the same assumption is made in terms of maintaining existing operations with regard to grazing management. Further, it is assumed that BLM would have the funding and manpower to monitor the public land to verify the level of impacts resulting from livestock use and to make adjustments in areas where multiple use objectives were not being met.

Range Improvements refer to construction projects (e.g., fencing, cattleguards, reservoirs, etc.) and land treatments designed to increase forage production on public land in the area. It is assumed that BLM would have the funding needed to undertake all such developments included in Alternatives A, B, and D. New development is not proposed under Alternative C, but funding would be directed toward maintaining existing developments and land treatments. In the case of Alternative E, it is assumed that BLM would have the manpower and funding to maintain those developments deemed beneficial for non-livestock use and to remove or dispose of those developments no longer suitable.

SOILS AND WATERSHED

Grazing and grazing management impacts on soil erosion, soil compaction, soil productivity and watershed condition are discussed in this section. As soil compaction increases and *infiltration rates* decrease, much of the water which normally enters the soil profile would move across the surface and would not be available for plant use. Surface water movement increases the potential for soil erosion. Since vegetation significantly controls surface water movement, it also controls soil erosion, ultimately dictating soil productivity. In addition, vegetative cover is a critical element in determining stream bank stability, stream turbidity, and water temperature. Livestock affect all these variables causing changes in surface conditons which may affect runoff and water quality.

VEGETATIVE ALLOCATION AND GRAZING MANAGEMENT. There have been no statistically significant studies on the effects of different grazing systems on infiltration rates, runoff, soil erosion, *riparian* zone stability, and stream turbidity that can be directly applied to the EIS area (Gifford 1978). However, it is well documented in literature that cattle naturally overgraze well-watered bottomlands before they move onto steeper lands or areas farther away from water (Cook 1963 and 1967, Williams 1954). The Proposed Action intends to draw cattle away from streams by developing new water sources. The success of such an approach has not been well documented, but may be feasible, provided other necessities, such as salt placement and herding, are considered. Williams (1954) suggests that permanent waters be closed during use of temporary facilities and that good initial distribution is required for success. Mueggler (1965) reports that steepness of slope is important in the distance livestock will range from bottoms. On relatively steep slopes, the cattle will be within a few hundred yards of the foot of the slope. Cook (1967) discusses many factors involved with cattle distribution, among the most important being water, salt placement, herding, and trails. It

appears that if the Proposed Action is to be successful, salt placement and herding must be implemented. Water developments alone may not provide the stream bottoms with any significant relief.

The vegetation section states the Proposed Action would result in better livestock distribution on approximately 60,178 acres by initiating new grazing systems and constructing new range developments. Assuming the proposed systems work as planned, 38 allotments containing 71 percent of total public acreage would be expected to show a decrease in erosion rates resulting from better cattle distribution through grazing system implementation and range developments (refer to Table 4-1). Three other allotments (2 percent of public land) would be expected to show increased erosion rates from decreased cover due to higher *utilization* rates or continuation of existing use on range land in poor condition. Erosion rates would stay the same on 27 percent (35 allotments) of total public acres. In terms of overall watershed protection, 46 allotments totaling 176,402 acres (76 percent of total public land acreage) would have a plant and litter cover of 60 percent or more.

TABLE 4-1
ESTIMATED SHEET EROSION RATES
TONS/ACRE/YEAR

Allotment	PES[1]	Present	Alternative A	B	C	D	E
Babcock-Berger		.13	.15	.11	.11	.08	.08
Buhl Group-Berger	M	.87	.70	.70	.70	.61	.52
Kerr-Berger		.29	.21	.21	.21	.18	.16
Ellis/Tews-Berger		.47	.41	.41	.41	.35	.32
Chadwick-Berger		.64	.64	.64	.64	.57	.50
Koch-Berger		.44	.44	.49	.44	.36	.33
Kaster-Berger		.16	.13	.13	.13	.13	.13
Kunkel-Berger		1.46	1.27	1.27	1.27	1.07	1.07
Lassen-Berger		.38	.40	.38	.40	.33	.27
Lierman-Berger		.06	.06	.06	.06	.06	.05
M. Lierman-Berger		.13	.13	.13	.13	.11	.10
Lierman/Wegener-Berger		.22	.18	.18	.22	.18	.15
Lanting-Berger		.20	.17	.17	.17	.15	.12
Martens-Berger		.47	.33	.33	.33	.28	.26
Noh-Berger		.36	.33	.33	.33	.30	.28
Parrott-Berger		.25	.21	.21	.21	.17	.17
PVGA-Berger		.15	.14	.14	.14	.14	.12
Schnitker-Berger		.35	.30	.30	.30	.22	.17
Smith-Berger		.17	.17	.17	.17	.12	.12
Wrigley-Berger		.27	.19	.19	.19	.22	.19
Skeem-Berger		.28	.28	.31	.28	.12	.21
J.E.Baker-Deep Creek		1.78	1.89	1.58	1.58	1.29	1.19
J.E.Baker-Lost Creek	M	1.19	.79	1.38	.79	.59	.39
Western Stockgrowers	M	1.20	.81	1.41	1.00	.81	.81
Point Ranch	S	.72	.41	.72	.62	.41	.41
Whiskey Creek	M	.93	.75	.93	.93	.75	.65
Moore-Lost Creek	M	.94	.82	.82	.82	.82	.59
North Big Creek		.48	.48	.48	.48	.44	.40
Kerr-Lost Creek		.54	.54	.54	.54	.45	.36
Noh-White Rock		.37	.35	.35	.17	.29	.26
Noh-Sections	M	1.16	.95	1.26	1.16	.84	.73
Mule Creek-PVGA	M	1.04	.89	1.19	1.04	.43	.32
Horse Creek-PVGA	M	.44	.31	.38	.38	.31	.34
Frahm-PVGA		.64	.64	.64	.57	.64	.51
South Mule Creek	M	1.29	1.11	1.48	1.29	.74	.74
Griff		.13	.13	.13	.13	.13	.13
Peters		.59	.41	.71	.59	.41	.41
Rock Creek-Coiner		.72	.72	.72	.72	.72	.56
Courtnay		.02	.02	.02	.02	.02	.02
Hub Butte-WSGA		.11	.11	.13	.11	.11	.11
Salmon Tract Iso. (Danos)		.22	.20	.22	.22	.13	.13
Hub Butte-Davis		.39	.36	.36	.39	.32	.28
Fuller		.34	.34	.34	.37	.34	.24
Greene Private	M	.87	.87	.87	.87	.76	.76
Salmon Tract-Stewart		1.17	1.17	1.17	1.17	1.17	1.17
Soldier Creek	M	1.02	.89	.89	1.02	.89	.76
Barton-Schutte		.07	.06	.07	.07	.06	.06
Jones-Goat Spring		.51	.42	.42	.42	.34	.34
Kinsey-Lost Creek	M	.76	.76	.76	.87	.44	.44
West Kunkel	M	1.09	.99	1.09	.99	.79	.69
Amsterdam-Kunkel	M	.96	.96	1.10	.96	.96	.83
Loughmiller		.55	.45	.64	.51	.39	.35
Salmon Tract Ind.		.06	.06	.06	.06	.05	.04
Lilly Grade		.33	.33	.28	.33	.28	.24
Salmon Tract-McCoy		.35	.35	.35	.35	.28	.26
South Big Creek		.25	.25	.25	.25	.25	.13
Randall Iso.		.17	.17	.17	.17	.14	.11
Lemmon-Ring		.42	.42	.42	.42	.42	.31
Cameron	M	.66	.66	.28	.92	.28	.28
Schnell-Salmon Tract	M	.50	.50	.57	.50	.42	.35
Magic Common	M	.63	.52	.73	.63	.52	.42
Sharp-Lost Creek	M	1.37	1.18	1.37	1.18	.98	.98
Salmon Tract Iso. (Stewart)		1.54	1.32	1.54	1.76	1.10	1.10
Lost Creek-U2	M	.72	.60	.72	.84	.48	.48
Salmon Tract-U2		.07	.07	.07	.07	.07	.07
Squaw Joe	S	.48	.48	.60	.48	.48	.48
Squaw Joe Iso.	S	.48	.48	.48	.48	.48	.48
Ridge	M	.82	.82	.96	.82	.82	.82
Ridge Iso.	M	.82	.82	.82	.82	.82	.82
Gravel Pit-Salmon Tract		.06	.06	.11	.06	.06	.06
Section 22-Salmon Tract		.16	.16	.34	.16	.16	.16
Highway Unit		.89	.71	1.07	.89	.71	.71
East Kunkel		.27	.21	.21	.27	.27	.21
Highway-Kunkel		.62	.62	.62	.67	.62	.39
Kunkel Iso.		.85	.79	.79	1.02	.68	.56
Hot Creek		.11	.11	.11	.11	.12	.09
Tews Iso.		.47	.47	.47	.47	.29	.23
Big Creek Iso.		.82	.82	.82	.82	.76	.69
WEIGHTED AVERAGE		.69	.56	.73	.64	.50	.46

[1] PES = Present Erosion Susceptibility
These are potentially high eroding soil types as indentified in TF-URA .45A3b(3).

M - indicates those allotments types that could have moderate erosion problems and where greater than 10 percent and less than 50 percent of the land area contains potentially high eroding soil

S - indicates those allotments that could have severe erosion problems and where greater than 50 percent of the land area contains potentially high eroding soil.

Hawkins and Gifford (1979) have shown a strong correlation between infiltration and grazing intensity. The proposed rest-rotation grazing systems would provide a maximum of one year of rest on any pasture. *Watershed recovery times* under this type of rest-rotation would be expected to be above those necessary to cause significant (10 percent) changes in infiltration. In addition, stocking rates would be such that utilization on key forage species would not be likely to fall below 40 percent.

Few studies have evaluated grazing system impacts on sediment production. As discussed previously, livestock naturally congregate along, and overgraze, streamsides. Such congregating causes excessive trampling along streams, resulting in decreased vegetative cover, increased bank sloughing, and higher stream sediment. Much of the sediment problem in the EIS area is a result of *stream channel erosion*. Alternative A would have no significant negative impact on the total sediment problem if proposed systems work as planned and livestock are withdrawn from stream corridors. The figures presented in Table 4-2 are general and intended to identify only those streams where impacts would be most significant. Approximately 29.6 miles of Salmon Falls Creek, 1.3 miles of Shoshone Creek, and 0.1 mile of Cottonwood Creek (Schnell-Salmon Tract) would not be significantly affected by any alternative and are not included in Table 4-2.

In addition, more livestock would contribute to higher bacteria levels of the streams if proposed systems fail to stop cattle congregation along water courses. Reduction in streamside vegetation would result in higher water temperatures, which would be detrimental to aquatic and riparian life. From a soil erosion standpoint, livestock grazing would augment the existing situation and result in worsening compaction, infiltration, and erosion problems in areas of heavy use such as along streams.

Implementation of the Increased Livestock Use alternative would increase grazing use in the long run, creating an overall increase in erosion rates of about six percent, with the area average remaining below one ton/acre/year. Overall, 18 allotments containing 34 percent of the total public acreage would be expected to show an increase in erosion rates, 25 allotments containing 25 percent of the acreage would show a decrease in erosion rates and 33 allotments that occupy 41 percent of the acreage would stay the same. Plant and litter cover of 60 percent or higher would occur on 36 allotments containing 113,633 acres (49 percent of total public land) under this alternative.

This alternative assumes that the increased livestock forage production (37,661 AUMs above the existing situation) would result by initiating new grazing systems and achieving better livestock distribution through range development. However, additional livestock use would result in an overall decrease in soil productivity by increasing soil compaction and decreasing permeability over a greater area, particularly where cattle congregate (water troughs, stream-riaprian zones, shady areas, valley flats). The increased stocking would accelerate current streamside problems by reducing riparian vegetation cover, which would result in: accelerated bank sloughing, higher turbidity levels, and higher than normal water temperatures. The potential would also be greater for higher levels of bacteria to enter water courses, resulting in increased water quality problems.

Present erosion trends are expected to continue and/or follow the trend in range conditions if the Existing Stocking Level alternative is selected.

There would be little or no change in erosion rates on 43 allotments containing 46 percent of the total acreage, and soil productivity and

TABLE 4-2
IMPACTS ON WATER RESOURCES

Allotment	Perrenial Streams (mi.)	Parameters	Proposed Action	Increased Livestock Use	Existing Livestock Level	Reduced Livestock Use	No Livestock Grazing	Existing Condition
Western Stockgrowers	McMullen Creek (3.6)	Cover	+	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	+	-	+	+	+	+
		Overall Condition	+	-	0	+	+	0
	Fifth Fork of Rock Creek (1.0)	Cover	0	-	0	+	+	0
		Soil Loss	0	-	0	+	0	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	-	0	+	+	0
Kerr-Lost Creek	Shoshone Creek (12.1)	Cover	0	0	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	-	0	+	+	0
Noh Sections	Deep Creek (0.3)	Cover	0	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	-	-	-	-	+	-
		Overall Condition	0	-	0	+	+	0
Mule Creek-PVGA	Mule Creek (0.3)	Cover	-	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	+	-	+	+	+	+
		Overall Condition	0	-	0	+	+	0
Horse Creek-PVGA	Horse Creek (0.3)	Cover	0	0	0	+	+	0
		Soil Loss	0	0	0	+	+	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	0	0	+	+	0
Frahm-PVGA	Deep Creek (1.5)	Cover	0	0	0	0	+	0
		Soil Loss	0	0	0	0	+	0
		Fecal Coliform	-	-	-	-	+	-
		Overall Condition	0	0	0	0	+	0
South Mule Creek	Mule Creek (0.8)	Cover	-	-	0	+	+	0
		Soil Loss	-	-	0	+	+	0
		Fecal Coliform	+	+	+	+	+	+
		Overall Condition	-	-	0	+	+	0
Greene Private	Green Creek (0.7)	Cover	-	-	0	0	+	0
		Soil Loss	-	-	0	0	+	0
		Fecal Coliform	-	-	-	0	+	-
		Overall Condition	-	-	0	0	+	0
Soldier Creek	Deep Creek (0.4)	Cover	0	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	-	0	+	+	0
Cameron	Cottonwood Creek (0.2)	Cover	0	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	-	0	+	+	0
Magic Common	Shoshone Creek (6.9)	Cover	0	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	-	0	+	+	0
	Horse Creek (0.7)	Cover	0	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	-	0	+	+	0
Lost Creek-U-2	Cottonwood (0.6)	Cover	0	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	-	0	+	+	0
	Deep Creek (0.2)	Cover	0	-	0	+	+	0
		Soil Loss	0	-	0	+	+	0
		Fecal Coliform	-	-	-	+	+	-
		Overall Condition	0	-	0	+	+	0

Cover = 0 is less than 6 percent change in vegetative cover.
+,- is 6 to 10 percent change in vegetative cover.
++,-- is more than 10 percent change in vegetative cover.

Soil Loss = Determined from erosion rates given in Table 4-1.
0 indicates less than a 10 percent change from present erosion.
+,++ indicate a 10-20 percent reduction and above 20 percent reduction in erosion rates, respectively.
-,-- indicate a 10-20 percent increase and above 20 percent increase in erosion rates, respectively.

Fecal Coliform = State of Idaho water quality standards.
+ indicates that they would not he exceeded.
- indicates that they would be exceeded.

Overall Condition = assessed by examining all of the above parameters. Allotments having two negative or positive changes received an overall negative or positive condition, respectively.

fertility would remain the same. Seven allotments, containing three percent of the land area, would have increased erosion rates from continous overstocking and poor livestock distribution. Low vegetative cover and high soil compaction problems exist on these allotments, particularly around water sources. Erosion rates would decrease on 26 allotments containing 51 percent of the total acreage. On these 25 allotments, soil productivity and fertility should improve. The overall decrease in erosion rates would be about seven percent, with the average for the area remaining below one ton/acre/year. Under this alternative, 40 allotments containing 170,369 acres (74 percent of total public land) would provide overall watershed protection with 60 percent or higher plant and litter cover.

In areas where over-utilization by livestock has resulted in a fair to poor stream-riparian condition (70 percent of all wetlands inventoried in the EIS area), no improvement would occur. Continued heavy grazing along streams would continue to compact soils and disturb plant roots, thus maintaining riparian zone vegetative cover in less than optimum condition. In addition, livestock- caused bank sloughing would result in accelerated stream sedimentation.

Lower stocking rates under the Reduced Livestock Use alternative would improve soil and watershed conditions in the long run. Long term potential erosion rates would decrease on 57 of the allotments containing 65 percent of the acreage, increase on one allotment containing less than one percent of the acreage, and remain the same on 18 allotments encompassing 13 percent of the total acreage (See Table 4-1). Long-term soil erosion rates show a 28 percent overall decrease under this alternative when compared to the existing situation. Therefore, most of the areas away from high use zones would show a long-term improvement in water holding capacity, infiltration rates, bulk density, sediment yield, and overall productivity. In terms of overall watershed protection, 51 allotments totaling 185,632 acres (80 percent of total public land) would have a plant and litter cover of 60 percent or more.

Although overall stocking rates and general erosion would be lower, areas where cattle presently congregate would still receive intensive use. Since cover, compaction and productivity would remain essentially the same in those areas, no net beneficial effect would be seen in concentrated use zones. Consequently, bacterial and other water quality contamination, resulting from livestock use, would not improve appreciably.

Implementation of the No Livestock Grazing alternative would decrease erosion rates on 67 allotments or 91 percent of the total acreage. Erosion rates would remain the same on the remaining nine allotments or nine percent of the land area. A plant and litter cover of 60 percent or greater would occur on 56 allotments consisting of 190,215 acres (82 percent of total public land).

Removal of livestock grazing would benefit watershed conditions significantly by decreasing soil compaction, erosion, and sediment yield. With forage utilization and trampling eliminated, ground cover, mainly litter, would increase. In addition, increased canopy cover would have the short-term effect of decreasing raindrop splash, increasing infiltration, and decreasing runoff, thus lowering erosion rates. The long-term effect of this, besides decreased erosion, is to increase soil productivity, improve soil structure, and increase soil water holding capacity.

By removing livestock grazing pressure, intensively overgrazed areas would have a chance to revegetate. Springs, riparian areas, meadows, and reservoirs would have reduced erosion rates and streambanks would become more stabilized.

With increased vegetative cover and no soil compaction the trend in long-term erosion rates would be toward excellent watershed condition. The overall net affect of increase in vegetative cover would be a 34 percent decrease in erosion rates from the present condition.

RANGE IMRPOVEMENTS. Impacts on soil and watershed resources resulting from range developments included in the Proposed Action would be as follows:

Burning and Seeding. On the 27,176 acres of brush control (new treatments and maintenance) proposed for burning, and burning and drill seeding, the surface would be virtually bare during the first growing season, making the erosion potential higher than the present condition. Within two growing seasons, the erosion rates would be close to the present condition. By the end of the third or fourth growing season, vegetative cover would be near maximum level and reflect long-term natural erosion rates.

Spraying and Seeding. Pechanec et. al. (1965) and Jorgensen (1971) state that soil erosion is usually not a hazard on sprayed sagebrush lands, for erosion is usually checked by dead sagebrush, litter cover, and grasses. Germination of grasses and forbs following spraying increases ground cover and reduces the potential for soil erosion. According to Vale (1974), manipulation of the vegetation that preserves or increases soil cover, whether living plants or litter, would decrease erosion. Spraying would usually have less than a one year effect on soil microorganisms. Spraying to decrease the amount of woody plants may lower long-term sheet erosion rates in areas that have sparse ground cover by reducing the competition for grasses. In some allotments, such as the Schnell-Salmon Tract, Magic Common, Mule Creek-PVGA, and Whiskey Creek, where a total of 4,544 acres with steeper sideslopes and higher erosion potentials are proposed to be sprayed, the resulting loss of deep-rooted systems would lead to unstable slope problems.

Railing and Aerial Seeding. Railing of sagebrush and woody plants has a churning effect on soil surface layers. The disturbance would break up soil crusting, scarify seed coats, and stimulate seed germination. Despite risks of short-term erosion on the 150 acres proposed for railing, long-term impacts would show a beneficial increase in cover and a decrease in sheet erosion rates. Anytime equipment is used on rangeland, the potential increases for water channelling, *rill and gully erosion* and severe soil loss.

Plowing and Seeding. The short-term affect of plowing 416 acres of rangeland (181 acres on the Point Ranch allotment and 235 acres on the Highway-Kunkel allotment) would increased erosion potential due to an essentially bare soil surface. Erosion potential would be particularly great on the Point Ranch allotment, where over 50 percent of the area contains highly erodable soils. Watershed condition would be adversely affected due to the increased possibility of accelerated runoff and sedimentation. However, after the second growing season, the vegetative response from the seeding should stabilize these areas resulting in a long-term beneficial impact.

Springs and Troughs. The development of two springs would produce a one-time, short-term increase in sediment released into the drainage systems. This impact is minor, relative to the benefits to be achieved through improved distribution of grazing livestock made possible through development. Such gains include a reduction of erosion and compaction rates and an incresase in vegetative cover. The development of 30 water troughs would help to uniformly distribute grazing over an allotment or pasture. Due to trampling and intensive grazing near troughs, compaction would increase, infiltration rates would decrease, and overall soil productivity would be reduced in the immediate vicinity of the water source.

Reservoirs. Construction of six reservoirs in the Western Stockgrowers, Noh-Sections, and Ridge allotments would disturb approximately six acres. Due to the soils crusting nature, the compaction force of heavy equipment, and the reservoirs being filled with water, construction sites would not contribute significantly to increased long-term erosion or sediment yield. Short-term impacts would be a few years of increased erosion, resulting in downstream sedimentation, most of which would be redeposited a short distance from the construction site on ephemeral drainages. Because only 1/2 of each reservoir is proposed for fencing, water quality would not be significantly improved.

Pipelines. Development of new service roads would not be required for pipeline construction. Installation of pipelines using only cross-country vehicular traffic, would disturb only about 1.5 acres of topsoil per mile of pipeline. The resulting impact would be increased soil compaction, decreased fertility, loss of production, and the potential for short-term wind and water erosion. Soil crusting, settling, and vegetation reestablishment would occur after the first year, decreasing adverse impacts.

Fences. Fencing of wildlife enclosures, potholes, and guzzlers would have a beneficial impact by reducing adverse impacts associated with livestock grazing such as: soil compaction, decreased vegetative cover, and increased sedimentation.

The soil and watershed impacts from range developments included in the Increased Livestock Use alternative would be similar to those described in the Proposed Action except 38,092 additional acres would be disturbed. This would cause a heightening in short-term allotment erosion rates and sedimentation problems on disturbed areas because the range developments would be applied to, and disturb, a significantly larger area than in the Proposed Action.

Impacts associated with land treatments (railing, burning, spraying) under the Existing Stocking Level would be similar to those discussed in the Proposed Action except of lesser magnitude as only 32,954 acres would be maintained.

The nature of the impacts associated with the proposed wildlife projects included in the Reduced Livestock Use alternative would be the same as those described in the Proposed Action but of lesser magnitude as only about 37 acres would be disturbed. No new lands treatment projects or maintenance would be undertaken. This would cause a significant reduction in the short-term erosion rates and sedimentation problems that would normally be associated with land treatment disturbances.

No developments are proposed in the No Livestock Grazing alternative.

VEGETATION

RIPARIAN AREAS

Included with the Proposed Action are 10.9 miles of fencing which would protect 35.5 acres of riparian vegetation from livestock use. The remaining 445.5 acres of such vegetation would continue to be adversely affected by heavy livestock grazing and trampling. Grazing management systems would reduce the impacts somewhat, but livestock would still tend to congregate in and around riparian zones.

Theoretically, grazing systems and range developments proposed as part of the Increased Livestock Use alternative would reduce livestock use in riparian

areas. However, the proposed increase in allowable livestock use would overshadow these factors, thus increasing livestock use on riparian areas, resulting in their accelerated degradation.

Riparian areas would continue to receive heavy grazing pressure under the Existing Stocking Level alternative. Since there would be no fencing, additional grazing systems, new range developments, or treatments to improve livestock distribution, this alternative would not enhance existing riparian vegetation.

Included in the Reduced Livestock Use alternative are 24.45 miles of fencing which would protect 207 acres of riparian vegetation from livestock use. The remaining 274 acres of riparian vegetation would still receive moderate to heavy livestock use, due to congregation near water and wet areas, even at low stocking rates.

The No Livestock Grazing alternative would be favorable to all riparian areas in the EIS area. Removal of all livestock would eliminate the major disturbing factor on such vegetation.

THREATENED AND ENDANGERED PLANTS

The habitat of two plants listed as sensitive in Idaho and one endangered species would be affected by Alternative B. No other alternative proposal (including the Proposed Action) would affect these populations. The following is an analysis of the impacts of Increased Livestock Use on these species.

VEGETATIVE ALLOCATION. A 4,537-AUM forage allocation (75 percent increase over six-year average actual use) in the Western Stockgrowers allotment would result in an increased threat of trampling *Allium anceps* (twin leaf onion).

Allocation of 5,427 AUMs of forage (28 percent increase over six-year average actual use) in the Point Ranch allotment would result in an increased threat of trampling of *Astragulus tetrapterus* (wild milkvetch) and *Lepidium davisii* (Davis' playa mustard).

GRAZING MANAGEMENT. Proposed grazing management systems would have no impact on any of the three species mentioned above.

RANGE IMPROVEMENTS. A proposed spray treatment on the Western Stockgrowers allotment would include approximately 400 acres identified as possible habitat for *Allium anceps*. Any plants inhabiting this area would probably be eliminated.

Approximately 220 acres identified as possible habitat for *Astragalus tetrapterus* would be included in a proposed burn and drill seed project on the Point Ranch allotment. Any plants located in this area would be eliminated.

CONDITION

VEGETATIVE ALLOCATION. Condition would not change appreciably based on initial stocking rates under the Proposed Action. The initial allocation of 57,416 AUMs would represent a four percent increase over the six-year average actual use. Projected changes in ecological condition (native range) and seeding condition for all alternatives are shown in Tables 4-3 and 4-4.

TABLE 4-3
ECOLOGICAL CONDITION

Allotment	Present Situation			Alternative A Proposed Action			Alternative B Increased Livestock Use			Alternative C Existing Stocking Level			Alternative D Reduced Livestock Use			Alternative E No Livestock Grazing		
	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
Babcock-Berger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buhl Group-Berger	0	161	340	0	161	340	0	161	340	0	161	340	0	161	340	0	161	340
Kerr-Berger	0	189	0	0	189	0	0	189	0	0	189	0	0	189	0	0	189	0
Ellis/Tews-Berger	0	0	188	0	0	188	0	0	0	0	0	188	0	0	188	0	0	188
Chadwick-Berger	0	0	3	0	0	3	0	0	3	0	0	3	0	0	3	0	0	3
Koch-Berger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaster-Berger	0	0	145	0	0	145	0	0	145	0	0	145	0	0	145	0	0	145
Kunkel-Berger	0	0	58	0	0	58	0	0	58	0	0	58	0	0	58	0	0	58
Lassen-Berger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lierman-Berger	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55
M. Lierman-Berger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lierman/Wegener-Berger	0	0	85	0	0	85	0	0	85	0	0	85	0	0	85	0	0	85
Lanting-Berger	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110
Martens-Berger	20	19	85	20	19	85	20	19	85	20	19	85	20	19	85	20	19	85
Noh-Berger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parrott-Berger	0	0	76	0	0	76	0	0	76	0	0	76	0	0	76	0	0	76
PVGA-Berger[1]	0	0	5	0	0	5	0	0	345	0	0	345	0	0	285	0	0	345
Schnitker-Berger	0	0	80	0	0	80	0	0	80	0	0	80	0	0	80	0	0	80
Smith-Berger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wrigley-Berger	0	0	414	0	0	414	0	0	3	0	0	414	0	0	414	0	0	414
Skeem-Berger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J. E. Baker-Deep Creek	0	35	0	0	35	0	0	35	0	0	35	0	0	35	0	0	35	0
J. E. Baker-Lost Creek	17	1,724	346	17	1,724	346	17	1,724	346	17	1,724	346	1,741	346	0	1,741	346	0
Western Stockgrowers	659	15,111	2,737	5,192	11,343	1,972	8,154	6,039	2,061	659	15,111	2,737	15,770	2,737	0	15,770	2,737	0
Point Ranch	4,750	12,506	5,758	14,297	4,688	3,571	14,297	2,854	2,785	4,750	12,506	5,758	17,256	5,758	0	17,256	5,758	0
Whiskey Creek	0	379	7,471	0	710	4,353	0	710	1,567	0	379	7,471	379	7,471	0	379	7,471	0
Moore-Lost Creek	0	37	0	0	37	0	0	37	0	0	37	0	37	0	0	37	0	0
North Big Creek	1,011	0	0	1,011	0	0	1,011	0	0	1,011	0	0	1,011	0	0	1,011	0	0
Kerr-Lost Creek	241	1,462	1,678	492	1,062	1,395	1,496	582	440	241	1,462	1,678	1,703	1,678	0	1,703	1,678	0
Noh-White Rock	943	0	0	943	0	0	943	0	0	943	0	0	943	0	0	943	0	0
Noh-Sections	1,397	58	0	1,455	0	0	1,455	0	0	1,397	58	0	1,455	0	0	1,455	0	0
Mule Creek-PVGA	781	3,659	814	1,481	3,066	707	2,387	2,160	707	781	3,659	814	4,440	814	0	4,440	814	0
Horse Creek-PVGA	695	1,109	810	695	929	810	875	749	630	695	1,109	810	1,804	810	0	1,804	810	0
Frahm-PVGA	0	200	496	0	200	496	258	50	388	0	200	496	200	496	0	200	496	0
South Mule Creek	93	2,684	0	1,274	1,218	0	1,513	399	0	93	2,684	0	2,777	0	0	2,777	0	0
Griff	0	74	403	0	74	403	0	74	403	0	74	403	0	477	0	0	477	0
Peters	0	705	0	0	498	0	0	292	0	0	705	0	0	705	0	0	705	0
Rock Creek-Coiner	0	0	145	0	0	145	0	0	145	0	0	145	0	145	0	0	145	0
Courtnay	0	0	85	0	0	85	0	0	85	0	0	85	0	85	0	0	85	0
Hub Butte-WSGA	0	0	1,422	0	0	1,422	0	0	266	0	0	1,422	0	1,422	0	0	1,422	0
Salmon Tract Iso. (Danos)	0	0	40	0	80	0	0	80	0	0	0	40	0	40	0	0	40	0
Hub Butte-Davis	0	0	320	0	0	320	0	0	51	0	0	320	0	320	0	0	320	0
Fuller	0	0	38	0	0	38	0	0	38	0	0	38	0	38	0	0	38	0
Greene Private	199	0	63	199	0	63	199	0	63	199	0	63	199	63	0	199	63	0
Salmon Tract-Stewart	0	0	43	0	0	43	0	0	43	0	0	43	0	43	0	0	43	0
Soldier Creek	0	162	122	71	162	51	148	136	0	0	162	122	162	122	0	162	122	0
Barton-Schutte	0	0	71	0	0	24	0	0	24	0	0	71	0	71	0	0	71	0
Jones-Goat Spring	0	75	0	0	75	0	0	75	0	0	75	0	0	75	0	0	75	0
Kinsey-Lost Creek	0	317	0	0	317	0	0	317	0	0	317	0	317	0	0	317	0	0
West Kunkel	0	24	170	0	24	170	0	24	170	0	24	170	0	194	0	0	194	0
Amsterdam-Kunkel	103	771	82	103	771	82	103	286	0	103	771	82	103	853	0	103	853	0
Loughmiller	0	296	20	0	296	20	0	296	20	0	296	20	0	316	0	0	316	0
Salmon Tract Ind.	0	0	10	0	0	10	0	0	10	0	0	10	0	10	0	0	10	0
Lilly Grade	0	1,050	0	0	1,050	0	0	1,050	0	0	1,050	0	0	1,050	0	0	1,050	0
Salmon Tract-McCoy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Snuth Big Creek	0	1,549	0	757	792	0	1,515	34	0	0	1,549	0	1,549	0	0	1,549	0	0
Randall Iso.	0	0	106	0	0	106	0	0	106	0	0	106	0	106	0	0	106	0
Lemmon-Ring	0	252	0	0	252	0	0	252	0	0	252	0	252	0	0	252	0	0
Cameron	507	868	3	507	868	3	1,378	0	0	507	868	3	1,375	3	0	1,375	3	0
Schnell-Salmon Tract	14	3,330	4,445	162	2,432	2,957	309	1,761	1,243	14	3,330	4,445	3,344	4,445	0	3,344	4,445	0
Magic Common	3,945	4,907	119	6,658	1,313	0	5,046	0	0	3,945	4,907	119	8,852	119	0	8,852	119	0
Sharp-Lost Creek	24	636	189	104	556	189	183	556	110	24	636	189	660	189	0	660	189	0
Salmon Tract Iso. (Stewart)	0	0	280	0	0	130	0	0	0	0	0	280	0	0	280	0	0	280
Lost Creek-U2	187	1,626	97	1,083	650	97	1,830	0	0	187	1,626	97	1,813	97	0	1,813	97	0
Salmon Tract-O2	0	0	200	0	0	200	0	0	0	0	0	200	0	0	200	0	0	200
Squaw Joe	0	3,533	1,831	548	3,499	747	718	3,214	292	0	3,533	1,831	3,533	1,831	0	3,533	1,759	0
Sguaw Joe Iso.	0	407	1,835	0	407	1,835	0	407	1,835	0	407	1,835	407	1,835	0	407	1,907	0
Ridge	5,147	1,140	315	5,147	910	113	6,026	0	0	5,147	1,140	315	6,544	58	0	6,544	58	0
Ridge Iso.	339	257	0	339	257	0	339	257	0	339	257	0	596	0	0	596	0	0
Gravel Pit-Salmon Tract	0	0	700	0	0	200	0	0	0	0	0	700	0	700	0	0	700	0
Section 22-Salmon Tract	0	0	160	0	0	160	0	0	0	0	0	160	0	0	160	0	160	0
Highway Unit	0	24	96	0	24	96	0	0	7	0	24	96	0	24	96	0	24	96
East Kunkel	0	32	0	0	32	0	0	32	0	0	32	0	0	32	0	0	32	0
Highway-Kunkel	0	0	447	0	0	212	0	0	171	0	0	447	0	447	0	0	447	0
Kunkel Iso.	0	67	89	0	67	89	0	67	19	0	67	89	0	156	0	0	156	0
Hot Creek	42	0	42	42	0	42	42	0	42	42	0	42	42	42	0	42	42	0
Tews Iso.	0	517	0	0	517	0	0	517	0	0	517	0	0	517	0	0	517	0
Big Creek Iso.	320	0	0	320	0	0	320	0	0	320	0	0	320	0	0	320	0	0
	21,434	61,952	36,082	42,917	41,304	25,346	50,582	25,435	15,112	21,434	61,952	36,082	79,604	37,144	2,660	79,604	37,304	2,560

[1] There would be 60 acres of PVGA-Berger converted to irrigated cropland under Alternative D.

TABLE 4-4
SEEDING CONDITION

Allotment	Present Situation				Alternative A Proposed Action				Alternative B Increased Livestock Use				Alternative C Existing Stocking Level				Alternative D Reduced Livestock Level[1]			Alternative E No Livestock Grazing[1]		
	Excel.	Good	Fair	Poor	Excel.	Good	Fair	Poor	Excel.	Good	Fair	Poor	Excel.	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
Babcock-Berger	250	263	94	0	250	357	0	0	250	357	0	0	250	357	0	0	250	263	94	250	263	94
Buhl Group-Berger	22	258	3,421	263	689	1,611	1,401	263	689	1,611	1,401	263	689	1,611	1,401	263	22	258	3,684	22	258	3,684
Kerr-Berger	0	481	1,559	0	600	1,440	0	0	600	1,440	0	0	600	1,440	0	0	0	481	1,559	0	481	1,559
Ellis/Tews-Berger	1,752	3,050	4,245	493	2,648	5,407	992	493	2,648	5,595	992	493	2,648	5,407	992	493	1,752	3,050	4,738	1,752	3,050	4,738
Chadwick-Berger	992	259	64	42	992	365	0	0	992	365	0	0	992	365	0	0	992	259	106	992	259	106
Koch-Berger	489	207	252	0	539	257	152	0	539	257	152	0	539	257	152	0	489	207	252	489	207	252
Kaster-Berger	490	459	416	0	610	739	16	0	610	739	16	0	610	739	16	0	490	459	416	490	459	416
Kunkel-Berger	1,068	0	390	0	1,152	196	110	0	1,152	196	110	0	1,152	196	110	0	1,068	0	390	1,068	0	390
Lassen-Berger	471	0	169	0	471	80	89	0	471	80	89	0	471	80	89	0	471	0	169	471	0	169
Lierman-Berger	628	0	0	37	628	0	0	37	628	0	0	37	628	0	0	37	628	0	37	628	0	37
M. Lierman-Berger	503	111	26	0	503	111	26	0	503	111	26	0	503	111	26	0	503	111	26	503	111	26
Lierman/Wegener-Berger	1,577	65	317	0	1,622	170	167	0	1,622	170	167	0	1,622	170	167	0	1,622	170	167	1,622	170	167
Lanting-Berger	68	2,096	959	0	356	2,767	0	0	356	2,767	0	0	356	2,767	0	0	356	2,767	0	356	2,767	0
Martens-Berger	396	156	143	20	445	270	0	0	445	270	0	0	445	270	0	0	445	270	0	445	270	0
Noh-Berger	3,031	1,531	529	14	3,194	1,911	0	0	3,194	1,911	0	0	3,194	1,911	0	0	3,194	1,911	0	3,194	1,911	0
Parrott-Berger	462	184	270	486	689	713	0	0	689	713	0	0	689	713	0	0	689	713	0	689	713	0
PVGA-Berger[2]	2,979	1,908	2,089	68	3,678	3,539	99	68	3,678	3,539	99	68	3,338	3,539	99	68	2,298	2,519	167	3,338	3,539	167
Schnitker-Berger	33	0	287	0	119	201	0	0	119	201	0	0	119	201	0	0	119	201	0	119	201	0
Smith-Berger	274	35	11	0	274	35	11	0	274	35	11	0	274	35	11	0	274	35	11	274	35	11
Wrigley-Berger	30	0	1,274	237	417	623	384	117	417	1,034	384	117	417	623	384	117	417	623	501	417	623	501
Skeem-Berger	179	84	53	0	179	84	53	0	179	84	53	0	179	84	53	0	179	84	53	179	84	53
J. E. Baker-Deep Creek	1,290	801	1,213	0	1,833	1,344	127	0	1,833	1,344	127	0	1,833	1,344	127	0	1,290	801	1,213	1,290	801	1,213
J. E. Baker-Lost Creek	0	0	511	0	153	358	0	0	350	161	0	0	153	358	0	0	0	511	0	0	511	0
Western Stockgrowers	1,660	2,607	731	0	1,879	3,119	0	0	2,555	4,696	0	0	1,879	3,119	0	0	1,660	2,607	731	1,660	2,607	731
Point Ranch	6,216	4,223	0	0	6,674	4,223	0	0	7,460	6,057	0	0	6,216	4,223	0	0	6,216	4,223	0	6,216	4,223	0
Whiskey Creek	8,642	2,227	0	0	9,478	4,178	0	0	10,314	6,128	0	0	8,642	2,227	0	0	8,642	2,227	0	8,642	2,227	0
Moore-Lost Creek	0	0	43	0	13	30	0	0	13	30	0	0	13	30	0	0	0	0	43	0	0	43
North Big Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kerr-Lost Creek	319	835	2,131	0	1,121	2,596	0	0	1,250	2,898	0	0	905	2,380	0	0	319	835	2,131	319	835	2,131
Noh-White Rock	79	575	0	0	184	470	0	0	300	354	0	0	184	470	0	0	79	575	0	79	575	0
Noh-Sections	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mule Creek-PVGA	0	1,409	351	0	531	1,229	0	0	825	935	0	0	531	1,229	0	0	0	1,409	351	0	1,409	351
Horse Creek-PVGA	0	0	708	0	212	676	0	0	844	224	0	0	132	576	0	0	0	0	708	0	0	708
Frahm-PVGA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Mule Creek	241	0	0	0	326	200	0	0	500	606	0	0	241	0	0	0	241	0	0	241	0	0
Griff	1,767	0	0	0	1,767	0	0	0	1,767	0	0	0	1,767	0	0	0	1,767	0	0	1,767	0	0
Peters	399	0	109	0	461	145	109	0	461	351	109	0	399	0	109	0	399	0	109	399	0	109
Rock Creek-Coiner	14	0	0	0	14	0	0	0	14	0	0	0	14	0	0	0	14	0	0	14	0	0
Courtnay	226	0	0	0	226	0	0	0	226	0	0	0	226	0	0	0	226	0	0	226	0	0
Hub Butte-WSGA	1,156	298	1,392	0	1,574	1,272	0	0	1,921	2,081	0	0	1,574	1,272	0	0	1,156	298	1,392	1,156	298	1,392
Salmon Tract Iso. (Oanos)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hub Butte-Davis	130	0	350	0	235	245	0	0	369	380	0	0	235	245	0	0	130	0	350	130	0	350
Fuller	241	756	35	0	478	554	0	0	693	339	0	0	478	554	0	0	241	756	35	241	756	35
Greene Private	0	59	0	0	0	59	0	0	0	59	0	0	0	59	0	0	0	59	0	0	59	0
Salmon Tract-Stewart	0	0	3	0	0	0	3	0	0	0	3	0	0	0	3	0	0	3	0	0	0	3
Soldier Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barton-Schutte	0	540	0	0	0	587	0	0	0	587	0	0	0	540	0	0	0	540	0	0	540	0
Jones-Goat Spring	506	805	0	0	747	564	0	0	747	564	0	0	747	564	0	0	506	805	0	506	805	0
Kinsey-Lost Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Kunkel	1,010	265	48	0	1,167	156	0	0	1,167	156	0	0	1,167	156	0	0	1,010	265	48	1,010	265	48
Amsterdam-Kunkel	0	144	0	0	0	144	0	0	284	427	0	0	0	144	0	0	0	144	0	0	144	0
Loughmiller	1,161	198	0	0	1,161	198	0	0	1,161	198	0	0	1,161	198	0	0	1,161	198	0	1,161	198	0
Salmon Tract Ind.	30	0	0	0	30	0	0	0	30	0	0	0	30	0	0	0	30	0	0	30	0	0
Lilly Grade	0	0	594	0	0	594	0	0	0	594	0	0	0	594	0	0	0	0	594	0	0	594
Salmon Tract-McCoy	0	0	35	0	0	0	35	0	0	0	35	0	0	0	35	0	0	0	35	0	0	35
South Big Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Randall Iso.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lemmon-Ring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cameron	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Schnell-Salmon Tract	3,925	2,670	737	0	4,689	4,453	428	0	5,360	6,020	428	0	4,080	2,824	428	0	3,925	2,670	737	3,925	2,670	737
Magic Common	0	197	0	0	300	897	0	0	1,762	2,360	0	0	0	197	0	0	0	197	0	0	197	0
Sharp-Lost Creek	0	133	20	0	153	0	0	0	153	0	0	0	153	0	0	0	0	133	20	0	133	20
Salmon Tract Iso. (Stewart)	0	0	0	0	0	150	0	0	0	280	0	0	0	0	0	0	0	0	0	0	0	0
Lost Creek-02	127	0	0	0	207	0	0	0	207	0	0	0	127	0	0	0	127	0	0	127	0	0
Salmon Tract-02	115	0	0	0	115	0	0	0	315	0	0	0	0	115	0	0	115	0	0	115	0	0
Squaw Joe	572	0	0	0	743	399	0	0	1,028	684	0	0	0	572	0	0	572	0	0	572	0	0
Squaw Joe Iso.	0	0	35	0	0	0	35	0	0	0	0	35	0	0	0	35	0	0	35	0	0	35
Ridge	0	0	221	0	130	302	221	0	202	374	0	221	0	0	0	221	0	0	221	0	0	221
Ridge Iso.	0	0	214	0	0	0	214	0	0	0	0	214	0	0	0	214	0	0	214	0	0	214
Gravel Pit-Salmon Tract	0	0	0	0	150	350	0	0	210	490	0	0	0	0	0	0	0	0	0	0	0	0
Section 22-Salmon Tract	0	0	0	0	0	0	0	0	60	100	0	0	0	0	0	0	0	0	0	0	0	0
Highway Unit	0	0	0	0	0	0	0	0	34	79	0	0	0	0	0	0	0	0	0	0	0	0
East Kunkel	154	0	94	0	248	0	0	0	248	0	0	0	0	248	0	0	154	0	94	154	0	94
Highway-Kunkel	0	0	0	0	235	0	0	0	276	0	0	0	0	0	0	0	0	0	0	0	0	0
Kunkel Iso.	159	0	0	0	159	0	0	0	229	0	0	0	159	0	0	0	159	0	0	159	0	0
Hot Creek	0	74	0	0	0	74	0	0	0	74	0	0	0	74	0	0	0	74	0	0	74	0
Tews Iso.	0	235	0	0	0	235	0	0	0	235	0	0	0	235	0	0	0	235	0	0	235	0
Big Creek Iso.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	45,833	30,198	26,143	1,660	57,488	50,677	4,672	978	65,223	61,330	4,672	978	53,696	44,488	4,672	978	46,397	33,946	21,431	47,437	34,963	21,434

1 There would be no acreage in excellent condition under Alternative D or E.
2 There would be 2,060 acres of PVGA-Berger converted to irrigated cropland under Alternative D.

Under the Increased Livestock Use alternative authorized stocking would be set at the inventoried *carrying capacity* of each allotment. A total of 64,840 AUMs would be allocated, representing an 18 percent increase over the six year (1975-1980) average actual use. Ecological condition would improve on six currently overstocked allotments. Condition on the other allotments would not be affected as the yearly grazing use would not exceed the allowable use levels of the forage species.

As with the Proposed Action, condition will not change appreciably under the Existing Stocking Level alternative. The initial allocation of 54,755 AUMs is the six-year (1975-1980) average actual use plus allocations on two new allotments.

The impacts of the proposed allocation (34,783 AUMs) under the Reduced Livestock Use alternative would be the same as the No Livestock Grazing alternative for both native and seeded ranges. The rate of change would be slower, however, due to the effects of the limited livestock use which would be permitted under this alternative.

The effects of the No Livestock Grazing alternative would be uniformly favorable to native range condition with vegetative composition gradually moving toward the climax plant community. All native public rangeland in the EIS area would show a long-term improvement by one condition class with the following two exceptions. Areas already in good condition would remain so. Those areas in the 8 - 12 inch precipitation zone which are dominated by big sagebrush, Sandberg bluegrass, and cheatgrass (Hironaka and Fosberg 1979) and which lack the necessary seed sources for climax vegetation would remain in fair to poor condition. Table 4-3 shows that the total amount of native rangeland rated as being in good condition would increase from 21,426 acres to 79,905 acres by the year 2000.

The condition of seedings in the area would show a long-term deterioration by one condition class except for those seedings already rated in poor condition. Failure to graze crested wheatgrass results in excessive accumulation of old growth in the center of the plants which causes the center of the plant to die out. Sagebrush reinvasion would further add to seeding deterioration (Sanders 1981).

GRAZING MANAGMENT. All alternatives being analyzed, except the No Livestock Grazing alternative which includes no systems, would employ the same four grazing systems: rest-rotation, deferred rotation, seasonal grazing, and custodial use (Table 4-5). Generally speaking, the lower the percentage of range subjected to seasonal grazing, the more favorable the effects on condition (Stoddart, Smith, and Box 1975). Seasonal grazing use is restricted to the same season each year, usually beginning with a spring treatment and continuing throughout the grazing season. Early and continuous grazing reduces plant vigor, ultimately reducing plant reproductive ability (Heady 1975). All grazing systems proposed under all alternatives would be based on combinations of three grazing treatments: grazing before seedripe, grazing after seedripe, and yearlong rest. The deferred rotation systems would not employ the yearlong rest treatment.

Expected improvements in ecological condition through management systems were based on expected increases in grass composition. Sites in fair or poor condition have compositions with excess shrubs and insufficient perennial grass species. Gibbens and Fisser (1975) found that an increase in livestock carrying capacity of six percent could be expected through implementation of

TABLE 4-5
GRAZING SYSTEMS

Status	Rest Rotation Acres	%	Deferred Rotation Acres	%	Seasonal Use Acres	%	Custodial Acres	%
Present	54,828	25	49,638	22	112,474	50	6,362	3
Alternative A - Proposed Action	60,138	27	128,025	57	27,439	12	7,740	4
Alternative B - Increased Livestock Use	61,806	28	152,340	68	2,834	1	6,362	3
Alternative C - Existing Stocking Level	54,828	25	49,638	22	112,474	50	6,362	3
Alternative D - Reduced Livestock Use	52,708	25	49,638	22	112,474	50	6,362	3
Alternative E - No Livestock Grazing	0	0	0	0	0	0	0	0

systems that provide relief from continuous grazing. Based on this figure, those sites in the upper one-half of either the fair or poor condition class would improve by one condition class. While the sites in the lower one-half of the fair or poor class would improve, the improvement would not be enough to move up one class. An exception to this would be those sites in the 8-12 inch precipitation zone dominated by big sagebrush, Sandberg bluegrass, and cheatgrass. Implementation of a grazing system will not improve the ecological condition of these areas. Hironaka and Fosberg (1979) state that the only way to improve these areas is through land treatments.

Seeding condition ratings were based on composition of seeded forage species, vigor of seeded species, and amount of invading species in each seeding. The use of grazing systems would maintain the productivity of seedings longer than continuous grazing, but decreases in condition would eventually result (Sanders 1981).

Grazing systems under the Proposed Action would prove beneficial to range condition, particularly on native rangeland. The reduction in acres grazed before seedripe would improve plant vigor and regeneration of plant tissue (Table 4-6). Grazing after seedripe helps to disperse and cover seeds, loosen hardened soils, and reduce the amount of dead standing vegetation (Head 1975). The yearlong rest treatment allows for seedling establishment, increased plant vigor, and litter accumulation.

Grazing management systems proposed under the Increased Livestock Use alternative would again be beneficial to range condition. Ecological condition would improve similarly to the Proposed Action, but the rate of improvement would be slower on allotments receiving additional grazing. The proposed grazing systems would help to stabilize the condition of seeding, but little improvement in condition classes would result.

TABLE 4-6
GRAZING TREATMENTS

Status	Early Grazing (Prior to Seedripe) Acres	%	Grazing After Seedripe Acres	%	Yearlong Rest Acres	%
Present	130,162	58	80,759	36	12,381	6
Alternative A - Proposed Action	120,237	54	89,077	40	14,028	6
Alternative B - Increased Livestock Use	107,934	48	101,380	46	14,028	6
Alternative C - Existing Stocking	130,162	58	80,759	36	12,381	6
Alternative D - Reduced Livestock Use	130,162	58	80,759	36	12,381	6
Alternative E - No Livestock Grazing	0	0	0	0	223,241	100

Under the Existing Stocking Level alternative, ecological condition would improve on those allotments currently grazed at or below the carrying capacity, along with those which receive periods of deferment or rest treatments.

Existing grazing systems would continue unchanged under the Reduced Livestock Use alternative (Table 4-5). These grazing systems would be combined with reduced livestock use and delayed turnouts ranging from 30 to 75 days on ten allotments totaling 87,633 acres. The result would be an improvement in native range condition classes similar to those described in the No Livestock Grazing alternative under Vegetative Allocation. Seeded ranges would deteriorate as discussed in the vegetative allocation section above.

RANGE IMPROVEMENTS. The Proposed Action includes various structural developments and land treatments. The structural developments would be used to initiate the proposed grazing systems and would effect condition through these systems. There are five types of land treatments proposed that would effect the ecological condition of native ranges: chemical spraying (3,603 acres), chemical spraying and drill seeding (4,011 acres), burning and drill seeding (5,364 acres), plowing and drill seeding (416 acres), and railing and aerial seeding (150 acres).

The chemical spraying treatment would reduce shrub composition and increase native grass and forb production. This change in composition would improve the ecological condition of the treated areas.

The remaining treatments would result in increased acres of seeded range. The condition of these new seedings would be good or excellent depending upon the effectiveness of the treatments. Tables 4-3 and 4-4 reflect the changes in condition resulting from conversion of native to seeded range.

Treatments proposed to improve existing seedings include spraying (10,848 acres), burning (21,812 acres), and railing (294 acres). These treatments would result in improvement of seedings from fair and poor to excellent and good condition.

As described in the Proposed Action, structural developments under Increased Livestock Use would be used to initiate the proposed grazing systems and would effect condition through these systems. Land treatments proposed include chemical spraying (20,209 acres), chemical spraying and drill seeding (12,108 acres), burning and drill seeding (15,155 acres), plowing and drill seeding (638 acres), railing and aerial seeding (280 acres), and drill seeding (600 acres).

The effects of the treatments on condition would be similar to those described under the Proposed Action, though more extensive.

The only range developments proposed under the Existing Stocking Level alternative would be seeding maintenance. A total of 32,954 acres of crested wheatgrass seedings would be maintained. This would include railing 294 acres, burning 21,892 acres, and spraying 11,128 acres. These treatments would improve the condition of the seeding to good and excellent depending on the effectiveness of the maintenance.

Lack of seeding maintenance under the Reduced Livestock Use alternative, coupled with natural reinvasion of sagebrush, would result in the same long-term seeding deterioration as described under No Livestock Grazing, though at a slower rate.

Lack of seeding maintenance in the No Livestock Grazing alternative, coupled with natural reinvasion of sagebrush, would result in a long-term deterioration of seeding conditions by one condition class. The total amount of seeded range rated as being in poor condition would increase from 1,660 acres to 22,059 acres.

TREND

VEGETATIVE ALLOCATION AND GRAZING MANAGEMENT. Under the Proposed Action, the livestock forage allocation of 73,550 AUMs would not significantly affect the exisitng vegetative trend (Table 4-7). The implementation of the proposed grazing systems would, though, be beneficial to trend. Providing relief from season long grazing on an additional 84,000 acres would allow for improvement in trend by allowing forage species to produce seed and improving vigor of plants. Changes in trend would coincide with changes in condition and production.

As the allocation of forage under the Increased Livestock Use alternative would be below the inventoried carrying capacity (92,133 AUMs), there would be little change in trend based on the allocation. Trend would improve on those six allotments currently stocked at levels in excess of the carrying capacity. Allotments proposed for rest-rotation and deferred rotation systems would improve in trend similarly to the Proposed Action, though increased livestock use would slow the rate. The proposed systems would stablize the trend of seedings.

With the exception of the six allotments (19,317 acres) currently being grazed in excess of carrying capacity, continued grazing at the Existing Stocking Level would not affect the trend in vegetation. No new grazing system would be implemented, thus no significant changes in trend would occur.

The effects of the Reduced Livestock Use and No Livestock Grazing alternatives would be uniformly favorable to the trend of native ranges. As

TABLE 4-7
RANGE TREND

Allotment	Present Situation			Alternative A Proposed Action			Alternative B Increased Livestock Use			Alternative C Existing Stocking Level			Alternative D Reduced Livestock Use			Alternative E No Livestock Grazing		
	Upward	Static	Declining	Upward	Static	Declining	Upward	Static	Declining	Upward	Static	Declining	Upward	Static	Declining	Upward	Static	Declining
Babcock-Berger	0	348	259	259	348	0	259	348	0	259	348	0	0	0	607	0	0	607
Buhl Group-Berger	0	2,023	2,442	2,020	2,023	422	2,020	2,023	422	2,020	2,023	422	0	501	3,964	0	501	3,964
Kerr-Berger	0	379	1,850	1,600	379	250	1,600	379	250	1,600	379	250	0	189	2,040	0	189	2,040
Ellis/Tews-Berger	2,612	4,059	3,057	5,665	4,063	0	5,665	4,063	0	5,665	4,063	0	0	188	9,540	0	188	9,540
Chadwick-Berger	17	1,153	190	177	1,153	30	177	1,153	30	177	1,153	30	0	3	1,357	0	3	1,357
Koch-Berger	0	631	317	100	631	217	100	631	217	100	631	217	0	0	948	0	0	948
Kaster-Berger	190	657	663	590	657	263	590	657	263	590	657	263	0	145	1,365	0	145	1,365
Kunkel-Berger	0	1,121	395	280	1,121	115	280	1,121	115	280	1,121	115	0	0	1,516	0	0	1,516
Lassen-Berger	0	507	133	80	507	53	80	507	53	80	507	53	0	0	640	0	0	640
Lierman-Berger	174	546	0	174	546	0	174	546	0	174	546	0	0	55	665	0	55	665
M. Lierman-Berger	0	503	137	0	503	137	0	503	137	0	503	137	0	0	640	0	0	640
Lierman/Wegener-Berger	1,647	176	221	1,797	176	71	1,797	176	71	1,797	176	71	0	85	1,959	0	85	1,959
Lanting-Berger	0	497	2,736	1,010	497	1,726	1,010	497	1,726	1,010	497	1,726	0	110	3,123	0	110	3,123
Martens-Berger	23	546	270	223	546	70	223	546	70	223	546	70	0	124	715	0	124	715
Noh-Berger	44	3,668	1,393	864	3,668	573	864	3,668	573	864	3,668	573	0	0	5,105	0	0	5,105
Parrott-Berger	71	707	700	861	617	0	861	617	0	861	617	0	0	76	1,402	0	76	1,402
PVGA-Berger	0	4,127	3,262	1,990	4,127	1,272	1,990	4,127	1,272	1,990	4,127	1,272	0	345	4,924	0	345	7,044
Schnitker-Berger	0	104	296	320	0	80	320	0	80	320	0	80	0	80	320	0	80	320
Smith-Berger	0	112	208	0	112	208	0	112	208	0	112	208	0	0	320	0	0	320
Wrigley-Berger	29	991	935	1,039	916	0	1,039	916	0	1,039	916	0	0	414	1,541	0	414	1,541
Skeem-Berger	0	195	121	0	195	121	0	195	121	0	195	121	0	0	316	0	0	316
J. E. Baker-Deep Creek	60	2,061	1,218	1,146	2,061	132	1,146	2,061	132	1,146	2,061	132	0	35	3,304	0	35	3,304
J. E. Baker-Lost Creek	541	2,057	0	1,134	1,464	0	1,293	1,305	0	1,134	1,464	0	2,087	0	511	2,087	0	511
Western Stockgrowers	5,769	13,479	4,257	6,975	13,479	3,051	10,686	12,094	725	6,975	13,479	3,051	14,809	3,698	4,998	14,809	3,698	4,998
Point Ranch	6,710	24,341	2,402	7,431	26,922	0	9,054	22,323	2,076	6,710	24,341	2,402	1,908	18,704	12,841	1,908	18,704	12,841
Whiskey Creek	3,811	7,640	7,268	6,718	12,001	0	6,726	7,772	4,221	6,063	7,640	5,016	2,669	5,181	10,869	2,669	5,181	10,869
Moore-Lost Creek	0	37	43	43	37	0	43	37	0	43	37	0	37	0	43	37	0	43
North Big Creek	0	1,011	0	0	1,011	0	720	291	0	0	1,011	0	1,011	0	0	1,011	0	0
Kerr-Lost Creek	70	3,598	2,998	1,119	5,547	0	2,374	3,443	849	1,215	3,829	1,622	3,773	0	2,893	3,773	0	2,893
Noh-White Rock	38	1,559	0	38	1,559	0	154	1,443	0	38	1,559	0	943	0	654	943	0	654
Noh-Sections	394	1,053	8	923	532	0	1,169	286	0	394	1,053	8	1,447	8	0	1,447	8	0
Mule Creek-PVGA	3,180	2,710	1,124	5,531	1,483	0	5,056	1,345	613	4,062	1,483	1,469	4,450	804	1760	4,450	804	1,760
Horse Creek-PVGA	69	2,801	452	1,157	2,165	0	1,609	1,713	0	977	2,345	0	2,162	452	708	2,162	452	708
Frahm-PVGA	119	421	156	119	421	156	258	401	37	119	421	156	540	156	0	540	156	0
South Mule Creek	1,043	1,975	0	1,639	1,379	0	1,931	1,087	0	1,112	1,906	0	3,018	0	0	3,018	0	0
Griff	1,707	537	0	1,707	537	0	1,707	537	0	1,707	537	0	537	0	1,707	537	0	1,707
Peters	503	510	200	953	260	0	1,159	54	0	503	510	200	505	200	508	505	200	508
Rock Creek-Coiner	0	159	0	0	159	0	0	159	0	0	159	0	159	0	0	159	0	0
Courtnay	226	85	0	226	85	0	226	85	0	226	85	0	85	0	226	85	0	226
Hub Butte-WSGA	1,706	1,901	661	3,374	494	400	3,903	365	0	3,374	494	400	761	661	2,846	761	661	2,846
Salmon Tract Iso. (Danos)	0	40	0	80	0	0	80	0	0	40	0	0	40	0	0	40	0	0
Hub Butte-Davis	0	320	480	517	283	0	602	198	0	517	283	0	320	0	480	320	0	480
Fuller	0	123	947	825	245	0	1,040	30	0	825	245	0	35	0	1,035	35	0	1,035
Greene Private	0	297	24	0	297	24	0	297	24	0	297	24	297	24	0	297	24	0
Salmon Tract-Stewart	0	46	0	0	46	0	0	46	0	0	46	0	46	0	0	46	0	0
Soldier Creek	146	56	82	217	56	11	277	7	0	146	56	82	202	82	0	202	82	0
Barton-Schutte	540	60	11	600	11	0	540	60	11	540	60	11	71	0	540	71	0	540
Jones-Goat Spring	0	1,386	0	1,187	199	0	1,187	199	0	1,187	199	0	75	0	1,311	75	0	1,311
Kinsey-Lost Creek	0	104	213	0	104	213	0	104	213	0	65	252	104	213	0	104	213	0
West Kunkel	916	601	0	1,517	0	0	1,517	0	0	1,517	0	0	194	0	1,323	194	0	1,323
Amsterdam-Kunkel	0	1,018	82	0	1,018	82	765	335	0	0	1,018	82	1,018	82	0	1,018	82	0
Loughmiller	1,091	584	0	1,359	316	0	1,359	316	0	1,091	584	0	316	0	1,359	316	0	1,359
Salmon Tract Ind.	30	10	0	30	10	0	30	10	0	30	10	0	10	0	30	10	0	30
Lilly Grade	0	0	1,644	594	1,050	0	594	1,050	0	0	0	1,644	1,050	0	594	1,050	0	594
Salmon Tract-McCoy	0	35	0	0	35	0	0	35	0	0	35	0	0	0	35	0	0	35
South Big Creek	161	1,388	0	918	631	0	1,549	0	0	161	1,388	0	1,549	0	0	1,549	0	0
Randall Iso.	0	106	0	106	0	0	106	0	0	0	106	0	106	0	0	106	0	0
Lemmon-Ring	0	252	0	0	252	0	0	252	0	0	252	0	252	0	0	252	0	0
Cameron	682	693	3	985	390	3	1,378	0	0	682	693	3	1,375	3	0	1,375	3	0
Schnell-Salmon Tract	10,979	3,293	849	11,563	2,709	849	12,774	1,741	606	10,979	3,293	849	6,940	849	7,332	6,940	849	7,332
Magic Common	76	8,789	303	5,703	3,465	0	8,628	540	0	76	8,789	303	8,865	303	0	8,865	303	0
Sharp-Lost Creek	268	539	195	348	654	0	427	575	0	348	654	0	807	195	0	807	195	0
Salmon Tract Isn. (Stewart)	0	280	0	150	130	0	280	0	0	0	280	0	280	0	0	280	0	0
Lost Creek-U2	1,273	571	193	1,875	162	0	1,792	245	0	1,003	541	493	1,844	193	0	1,844	193	0
Salmon Tract-U2	80	235	0	80	235	0	280	35	0	80	235	0	315	0	0	315	0	0
Squaw Joe	572	2,743	2,621	1,793	4,143	0	1,963	2,373	1,600	1,223	2,743	1,970	3,315	2,049	572	3,315	2,049	572
Squaw Joe Iso.	35	433	1,809	35	433	1,809	35	433	1,809	35	433	1,809	433	1,809	35	433	1,809	35
Ridge	4,993	1,420	410	5,403	1,420	0	5,214	1,219	390	4,993	1,420	410	6,192	410	221	6,192	410	221
Ridge Iso.	739	71	0	739	71	0	739	71	0	739	71	0	596	0	214	596	0	214
Gravel Pit-Salmon Tract	0	0	700	500	200	0	700	0	0	0	0	700	0	700	0	0	700	0
Section 22-Salmon Tract	0	0	160	0	0	160	160	0	0	0	0	160	0	160	0	0	160	0
Highway Unit	0	0	120	0	0	120	113	0	7	0	0	120	0	120	0	0	120	0
East Kunkel	0	0	280	0	0	280	280	0	0	0	0	280	0	280	0	0	280	0
Highway-Kunkel	0	0	447	0	0	447	280	0	167	0	0	447	0	447	0	0	447	0
Kunkel Iso.	0	235	80	0	235	80	70	235	10	0	235	80	235	80	0	235	80	0
Hot Creek	0	84	74	0	84	74	0	84	74	0	84	74	84	74	0	84	74	0
Tews Iso.	0	539	213	0	539	213	0	539	213	0	539	213	539	213	0	539	213	0
Big Creek Iso.	0	320	0	0	320	0	0	320	0	0	320	0	320	0	0	320	0	0
Totals	53,334	117,656	52,312	96,406	113,244	13,712	113,022	90,935	19,385	81,059	112,173	30,070	78,726	40,500	101,956	78,726	40,500	104,076

the plant composition within each native vegetation type on public land improved, the trend would improve to static or upward. The existing grazing systems, in conjunction with reduced livestock numbers and delayed turnout dates on 87,633 acres, would also be beneficial to trend on native ranges under Reduced Livestock Use. The trend of seedings under both alternatives would eventually be uniformly downward as plants become decadent with old growth and as sagebrush reinvades.

RANGE IMPROVEMENTS. Structural improvements included in the Proposed Action would effect trend through the resulting grazing systems. The five types of native land treatment described under the cover section would change the trend to upward on the treatment areas. Increased forage on the treatment areas would also reduce grazing impacts on other areas by increasing total available forage, thus improving trend. The proposed seeding maintenance projects, totaling 32,954 acres, would also change trend on treated areas to upward.

Structural improvements proposed under the Increased Livestock Use alternative would improve trend through the initiation of associated grazing systems. Some betterment in trend through enhanced livestock distribution would be a direct result of the improvements. The proposed land treatments (48,950 acres) and treatment maintenance (35,590 acres) would change the trend to upward on all treatment areas, both native and seeded, as described under the Proposed Action.

Range developments considered under the Existing Stocking Level alternative would include only 32,954 acres of seeding maintenance. These treatments would change the trend of all treatment areas to upward and would have some beneficial effects on adjacent areas by increasing available forage for livestock use. This increase in available forage would reduce use on other untreated areas.

Lack of seeding maintenance would eventually result in downward trend on all seeded range under the Reduced Livestock Use alternative. This downward trend would be the result of sagebrush reinvasion and the build-up of old growth in the centers of grass plants. Native range trend would be unaffected.

Natural reinvasion of sagebrush, which has been seen on ungrazed plots located on the Berger Resource Conservation Area, would result in a long-term downward trend in all of the seedings in the Twin Falls EIS area with No Livestock Grazing. The trend on all seedings would, therefore, decline after livestock are removed and seeding maintenance is eliminated. All 103,834 acres of seeding would achieve a downward trend over the long term.

PRODUCTION

VEGETATIVE ALLOCATION AND GRAZING MANAGEMENT. The allocation under the Proposed Action would not affect production of forage. No allotment would be used above carrying capacity. Long-term increases in the livestock forage allocation (73,550 AUMs) would be satisfied by additional forage projected to accrue through range developments. Implementation of proposed grazing systems would improve production by providing for the phenological needs of the plants. As stated previously, a six percent increase in forage could be expected through relief from repeated seasonal grazing. Systems allowing for

periodic rest would be initiated on 83,697 acres presently subjected to repeated seasonal use. Production changes are shown in Table 4-8.

Under the Increased Livestock Use alternative, no allotment would be stocked in excess of the surveyed carrying capacity. Production would remain stable, based on the long-term allocation (92,133 AUMs). Implementing grazing systems on 113,948 acres presently subjected to repeated seasonal grazing would result in improved production on this acreage.

Little or no change in production would occur under the Existing Livestock Use alternative as a result of the forage allocation (54,755 AUMs, the six-year average). Continuation of present systems would result in improved production on allotments which are primarily native range. On allotments which are mainly seedings, production would stablize, but show little increase.

Impacts of the Reduced Livstock Use and No Livestock Grazing alternatives on native range production would be favorable, the only difference being a slower rate of increased production from limited livestock use. Continuation of existing grazing systems under Reduced Livestock Use, combined with delayed turnouts on 87,633 acres, would add to improved production on native range. As described under Condition, seedings would decline, thus production would be reduced.

RANGE IMPROVEMENTS. Structural developments under the Proposed Action would contribute to an increase in productivity through implementation of grazing systems and through improvement of livestock distribution. The Proposed Action includes 3,603 acres of chemical spray treatment resulting in an increase of production totalling 413 AUMs; 4,011 acres of chemical spray and drill seed (1,888 AUMs); 5,364 acres of burn and drill seed (2,089 AUMs); 416 acres of plow and drill seed (234 AUMs); 150 acres of rail and aerial seed (38 AUMs); and 32,954 acres of seeding maintenance (10,166 AUMs). These increases would contribute to the overall long-term increases in vegetation production under this alternative.

Structural developments included in the Increased Livestock Use alternative would contribute to an increase in productivity through the implementation of grazing systems and through improvement in distribution. Laycock and Conrad (1981) found in eastern Utah that uniform distribution on summerlong grazed range gave the same results, production wise, as range grazed under a rest-rotation system.

Proposed land treatments would result in substantial increases in usable forage. Proposed spray projects would increase production by 2,300 AUMs; spray and drill seed treatments would result in an additional 5,688 AUMs of usable forage; burn and drill seeding would produce an added 5,922 AUMs; rail and seed, plow and seed, and drill seed projects would increase production by 502 AUMs. Seeding maintenance on 35,590 acres would increase production of useable forage by 10,941 AUMs.

Land treatments proposed under the Existing Stocking Level alternative are limited to 32,954 acres of seeding maintenance. These treatments would not only increase forage production (10,166 AUMs), but would reduce the amount of seeded range which is declining in production.

The lack of seeding maintenance, coupled with natural reinvasion of sagebrush, would result in long-term deterioration of seedings under the Reduced

TABLE 4-8
VEGETATION PRODUCTION

Allotment	Present Situation		Alternative A Propsed Action		Alternative B Increased Livestock Use		Alternative C Existing Stocking Level		Alternative D Decreased Livestock Use		Alternative E No Livestock Grazing	
	Total Biomass (AUMs)	Useable Forage All Animal Classes (AUMs)	Total Biomass (AUMs)	Useable Forage All Animal Classes (AUMs)	Total Biomass (AUMs)	Useable Forage All Animal Classes (AUMs)	Total Biomass (AUMs)	Useable Forage All Animal Classes (AUMs)	Total Biomass (AUMs)	Useable Forage All Animal Classes (AUMs)	Total Biomass (AUMs)	Useable Forage All Animal Classes (AUMs)
Babcock-Berger	974	448	1,132	527	1,132	527	1,132	527	862	336	862	336
Buhl Group-Berger	3,622	1,775	4,520	2,433	4,520	2,433	4,520	2,224	3,178	1,331	3,178	1,331
Kerr-Berger	2,275	1,365	3,245	1,985	3,245	1,985	3,245	1,850	1,934	1,024	1,934	1,024
Ellis/Tews-Berger	9,673	4,933	12,065	6,196	12,593	6,460	12,065	6,129	8,440	3,700	8,440	3,700
Chadwick-Berger	1,804	1,104	1,904	1,154	1,904	1,154	1,904	1,154	1,528	828	1,528	828
Koch-Berger	1,296	687	1,364	721	1,364	721	1,364	721	1,124	515	1,124	515
Kaster-Berger	1,449	768	2,036	1,034	2,036	1,034	1,697	892	1,257	576	1,257	576
Kunkel-Berger	1,819	964	1,979	1,044	1,979	1,044	1,979	1,044	1,578	723	1,578	723
Lassen-Berger	685	363	735	445	735	445	735	388	594	272	594	272
Lierman-Berger	1,069	545	1,069	545	1,069	545	1,069	545	933	409	933	409
M. Lierman-Berger	850	425	850	425	850	425	850	425	744	319	744	319
Lierman/Wegener-Berger	1,917	1,035	2,009	1,096	2,009	1,096	2,009	1,081	1,658	776	1,658	776
Lanting-Berger	2,607	1,486	3,635	2,253	3,635	2,253	3,113	1,739	2,236	1,115	2,236	1,115
Martens-Berger	636	318	736	450	736	450	736	368	557	239	557	239
Noh-Berger	5,286	2,590	5,706	3,433	5,706	3,433	5,706	2,800	4,639	1,943	4,639	1,943
Parrott-Berger	1,436	790	1,904	1,050	1,904	1,050	1,904	1,042	1,239	593	1,239	593
PVGA-Berger	5,372	2,847	6,986	4,227	6,986	4,227	6,560	3,441	4,660	2,135	4,660	2,135
Schnitker-Berger	353	194	593	337	593	337	593	341	305	146	305	146
Smith-Berger	408	208	408	210	408	210	408	208	356	156	356	156
Wrigley-Berger	1,482	741	2,164	1,286	2,698	1,520	2,164	1,082	1,371	593	1,371	593
Skeem-Berger	308	160	418	215	418	215	308	160	268	120	268	120
J. E. Baker-Deep Creek	2,375	1,188	3,099	1,550	3,099	1,550	3,099	1,550	2,078	891	2,078	891
J. E. Baker-Lost Creek	2,237	841	3,020	1,197	3,084	1,229	3,020	1,197	3,530	1,272	3,530	1,272
Western Stockgrowers	19,851	7,445	20,453	7,746	25,315	9,795	20,453	7,746	24,586	9,339	24,586	9,339
Point Ranch	26,498	11,564	28,634	12,632	32,028	14,329	26,498	11,564	25,763	10,229	25,763	10,229
Whiskey Creek	14,793	6,029	20,223	8,744	21,767	9,516	16,415	6,840	13,286	4,823	13,286	4,823
Moore Lost Creek	124	49	148	61	208	91	148	61	128	62	128	62
North Big Creek	1,474	526	1,474	526	1,582	580	1,474	526	1,474	526	1,474	526
Kerr-Lost Creek	5,577	2,235	8,255	3,574	9,333	4,113	7,703	3,298	6,635	2,815	6,635	2,815
Noh-White Rock	1,026	431	1,234	535	1,302	569	1,234	535	1,058	447	1,058	447
Noh-Sections	1,261	593	1,333	629	1,557	741	1,261	593	1,324	621	1,324	621
Mule Creek-PVGA	6,325	2,453	7,085	2,833	7,459	3,020	6,887	2,734	7,259	2,920	7,259	2,920
Horse Creek-PVGA	3,163	1,151	3,757	1,448	3,983	1,561	3,717	1,428	3,847	1,493	3,847	1,493
Frahm-PVGA	706	238	706	238	770	270	706	238	748	259	748	259
South Mule Creek	3,327	1,111	3,895	1,395	4,519	1,707	3,379	1,137	3,997	1,446	3,997	1,446
Griff	2,661	1,287	2,815	1,404	2,815	1,404	2,661	1,287	2,339	965	2,339	965
Peters	983	450	1,193	555	1,347	689	983	450	983	450	983	450
Rock Creek-Coiner	370	180	370	180	370	180	370	180	382	186	382	186
Courtnay	282	145	282	145	282	145	282	135	248	101	248	101
Hub Butte-WSGA	4,030	1,611	5,152	2,172	5,762	2,477	5,152	2,172	3,707	1,288	3,707	1,288
Salmon Tract Iso. (Danos)	18	12	20	13	20	13	18	12	22	13	22	13
Hub Butte-Davis	896	363	1,198	514	1,508	611	1,214	492	762	309	762	309
Fuller	1,083	487	1,671	781	1,906	857	1,672	752	1,672	752	1,672	752
Greene Private	399	160	399	160	399	160	399	160	411	165	411	165
Salmon Tract-Stewart	23	8	23	8	23	8	23	8	23	8	23	8
Soldier Creek	259	81	297	93	339	106	259	81	361	113	361	113
Barton-Schutte	886	441	982	489	982	534	886	441	665	331	665	331
Jones-Goat Spring	1,063	478	1,647	741	1,648	741	1,647	741	798	359	798	359
Kinsey-Lost Creek	446	151	446	151	446	151	446	151	479	162	479	162
West Kunkel	1,678	764	2,108	960	2,108	960	2,007	914	1,401	638	1,401	638
Amsterdam-Kunkel	853	319	853	319	1,687	631	853	319	861	322	861	322
Loughmiller	1,854	870	1,965	922	1,965	922	1,854	870	1,692	740	1,692	740
Salmon Tract Ind.	36	21	36	21	36	21	36	21	31	18	31	18
Lilly Grade	2,819	1,120	3,239	1,287	3,239	1,287	3,071	1,220	2,819	1,120	2,819	1,120
Salmon Tract-McCoy	31	18	31	18	31	18	31	18	33	19	33	19
South Big Creek	891	351	1,211	477	1,477	582	891	351	1,234	486	1,234	486
Randall Iso.	55	17	55	17	55	17	45	14	55	17	55	17
Lemmon-Ring	161	49	161	49	161	49	161	49	168	51	168	51
Cameron	924	344	924	344	1,287	479	924	344	1,064	396	1,064	396
Schnell-Salmon Tract	9,695	4,509	12,176	5,663	14,460	6,849	9,893	4,601	8,242	3,833	8,242	3,833
Magic Common	6,288	2,085	8,535	2,830	14,051	4,659	6,288	2,085	8,137	2,698	8,137	2,698
Sharp-Lost Creek	1,214	447	1,553	572	2,368	872	1,513	557	1,586	584	1,586	584
Salmon Tract Iso. (Stewart)	164	61	266	99	366	136	124	46	175	65	175	65
Lost Creek-U2	2,172	792	2,542	927	2,723	993	1,846	673	2,729	995	2,729	995
Salmon Tract-U2	185	77	185	77	387	161	185	77	185	77	185	77
Squaw Joe	3,230	1,173	4,373	1,588	4,744	1,723	3,748	1,361	3,885	1,411	3,885	1,411
Squaw Joe Iso.	1,583	500	1,583	500	1,583	500	1,583	500	1,649	521	1,649	521
Ridge	5,418	2,062	5,959	2,268	6,724	2,559	5,418	2,062	5,794	2,205	5,794	2,205
Ridge Iso.	583	224	583	224	583	224	583	224	601	231	601	231
Gravel Pit-Salmon Tract	812	351	1,020	441	1,085	469	812	351	914	395	914	395
Section 22-Salmon Tract	171	68	171	68	279	111	171	68	171	68	171	68
Highway Unit	72	24	72	24	201	67	72	24	75	25	75	25
East Kunkel	196	82	311	130	311	130	311	130	148	62	148	62
Highway-Kunkel	375	114	674	205	727	221	375	114	415	126	415	126
Kunkel Iso.	224	92	224	92	290	119	224	92	236	97	236	97
Hot Creek	193	135	193	135	193	135	193	135	206	141	206	141
Tews Iso.	388	194	388	194	388	194	388	194	388	194	388	194
Big Creek Iso.	551	199	551	199	551	199	551	199	551	199	551	199
TOTALS	190,273	82,516	227,211	102,304	254,133	113,998	210,218	92,277	193,471	77,923	193,471	77,923

Livestock Use alternative. Native range would not be affected by the lack of treatments.

With No Livestock Grazing occurring, the lack of land treatments on native range would have no effect on production. As condition improved, production would increase without treatment. Seedings would eventually be overtaken by reinvading sagebrush due to a lack of seeding maintenance. As sagebrush reinvasion progressed, production of usable forage would decline.

COVER

VEGETATIVE ALLOCATION AND GRAZING MANAGEMENT. Under the Proposed Action, forage allocations on six allotments (19,317 acres) currently grazed above their carrying capactiy would be reduced below that capacity, thus increasing cover on these allotments. Allocations would have little effect on the remaining acreage. Implementing grazing systems on an additional 83,697 acres would result in improved vegetative cover. The major factors resulting in improved cover would be increased plant vigor and production, enlargement of existing plants, and establishment of new plants. Overall, cover would improve from 43 percent to 44 percent (Table 4-9).

Initial allocation of forage under the Increased Livestock Use alternative would be an 18 percent increase over the six-year average use, though no allotment would be grazed above its carrying capacity. Vegetation cover would decrease based on the allocation itself. An additional 113,948 acres would be placed in rest-rotation or deferred rotation systems. Coupled with existing systems, cover would improve as a result of grazing management. Overall, the loss of cover resulting from the allocation would be offset by the improvement from systems and improvements with cover remaining at 43 percent for the EIS area.

The inital stocking rate under the Existing Stocking Level alternative would remain the six-year average. Allotments currently used above the surveyed carrying capacity would experience some reductions in cover as plant vigor declines. Existing systems would continue to be followed, with some improvement in cover occurring on those allotmenst which receive periodic rest or deferment. Overall, cover would remain at 43 percent.

The effects of the Reduced Livestock Use and No Livestock Grazing alternatives on vegetative cover would be favorable. However, vegetative cover and litter increases would be less with the reduced grazing alternative. Continued use of existing grazing systems on 104,466 acres, coupled with turnout delays on 87,633 acres, would also lead to improved cover under the Reduced Livestock Use alternative. Increased plant vigor and reduced utilization would be the primary causes of this increase. Overall, average cover would increase from 43 percent to 46 and 47 percent respectively over the long term.

RANGE IMRPOVEMENTS. As already discussed, structural developments included in the Proposed Action would affect cover indirectly through the implementation of grazing management systems.

Proposed land treatments would alter cover overall as shown in Table 4-9. Over the long term cover on sprayed sites would return to present levels. The spray and drill seeding, burn and drill seeding, and plow and drill seeding

TABLE 4-9

COVER

Allotment	Present Situation				Alternative A Proposed Actinn				Alternative B Increased Livestock Use				Alternative C Existing Stocking Level				Alternative 0 Reduced Livestock Use				Alternative E No Livestock Grazing			
	VEG. COVER	LITTER	BARE GROUND	ROCK	VEG. COVER	LITTER	BARE GROUND	ROCK	VEG. COVER	LITTER	BARE GROUND	ROCK	VEG. COVER	LITTER	BARE GROUND	ROCK	VEG. COVER	LITTER	BARE GROUND	ROCK	VEG. COVER	LITTER	BARE GROUND	ROCK
Babcock-Berger	17	45	32	6	19	48	27	6	18	45	31	6	19	48	27	6	23	52	19	6	24	53	17	6
8uhl Group-Berger	14	38	33	15	18	39	28	15	18	39	28	15	18	39	28	15	20	45	20	15	22	46	17	15
Kerr-Berger	14	32	34	20	18	35	27	20	18	35	27	20	18	35	27	20	20	37	23	20	21	40	19	20
Ellis/Tews-Berger	16	23	51	10	17	25	48	10	17	25	48	10	17	25	48	10	20	31	39	10	22	33	35	10
Chadwick-Berger	16	42	30	12	16	42	30	12	16	35	37	12	16	42	30	12	17	43	28	12	18	45	25	12
Koch-Berger	10	32	53	5	11	33	51	5	11	30	54	5	11	33	51	5	15	35	45	5	17	36	42	5
Kaster-Berger	15	49	29	7	16	53	24	7	16	53	24	7	16	53	24	7	19	53	21	7	20	55	18	7
Kunkel-Berger	14	29	49	8	15	32	45	8	15	32	45	8	15	32	45	8	20	35	37	8	21	36	35	8
Lassen-Berger	15	24	56	5	15	24	56	5	15	24	56	5	15	24	56	5	18	25	52	5	20	30	45	5
Lierman-Berger	27	47	22	4	27	47	22	4	26	40	30	4	27	47	22	4	28	47	21	4	30	49	17	4
M. Lierman-Berger	15	55	26	4	15	55	26	4	15	55	26	4	15	55	26	4	20	56	20	4	21	56	19	4
Lierman/Wegener-Berger	23	34	32	11	24	37	28	11	23	33	33	11	23	34	32	11	25	36	28	11	28	40	21	11
Lanting-Berger	20	44	28	8	23	47	22	8	23	47	22	8	23	47	22	8	27	48	17	8	29	49	14	8
Martens-Berger	10	20	58	12	13	27	48	12	13	27	48	12	13	27	48	12	19	29	40	12	22	30	36	12
Noh-Berger	16	30	44	10	17	33	40	10	17	33	40	10	17	33	40	10	18	35	37	10	20	36	34	10
Parrott-Berger	13	33	40	14	17	36	33	14	17	36	33	14	17	36	33	14	20	38	28	14	21	38	27	14
PVGA-Berger	15	28	45	12	17	32	39	12	17	32	39	12	16	30	42	12	18	31	39	12	20	34	34	12
Schnitker-Berger	17	48	28	7	19	51	23	7	19	51	23	7	19	51	23	7	25	53	15	7	26	54	13	7
Smith-Berger	16	42	32	10	16	42	32	10	16	42	32	10	16	42	32	10	22	45	23	10	22	47	21	10
Wrigley-Berger	16	38	33	13	19	43	25	13	19	43	25	13	19	43	25	13	24	45	18	13	27	46	24	13
Skeem-Berger	9	31	51	9	9	31	51	9	9	29	53	9	9	31	51	9	14	33	44	9	14	35	42	9
J. E. Baker-Deep Creek	11	20	56	13	13	23	51	13	13	23	51	13	13	23	51	13	17	27	43	13	19	29	39	13
J. E. Baker-Lost Creek	39	18	17	26	41	22	11	26	38	14	22	26	41	22	11	26	46	24	4	26	48	25	1	26
Western Stockgrowers	62	15	13	10	62	18	10	10	58	10	22	10	62	15	13	10	62	18	10	10	62	20	8	10
Point Ranch	45	15	21	19	48	20	13	19	43	12	26	19	45	17	19	19	49	21	11	19	50	23	8	19
Whiskey Creek	48	11	33	8	49	14	29	8	48	11	33	8	49	12	31	8	52	14	26	8	52	16	24	8
Moore-Lost Creek	40	10	28	22	42	12	24	22	40	11	27	22	42	12	24	22	42	13	22	23	43	17	18	22
North Big Creek	34	10	45	11	34	10	45	11	33	10	46	11	34	10	45	11	38	12	39	11	41	13	35	11
Kerr-Lost Creek	52	13	19	16	53	15	16	16	52	12	20	16	52	15	17	16	54	16	14	16	54	18	12	16
Noh-White Rock	31	4	45	20	32	7	41	20	31	6	43	20	32	7	41	20	37	12	31	20	37	13	30	20
Noh-Sections	52	5	36	7	53	10	30	7	46	5	42	7	52	5	36	7	54	12	27	7	55	14	24	7
Mule Creek-PVGA	43	24	22	11	44	26	19	11	42	19	28	11	44	24	21	11	47	27	15	11	48	30	11	11
Horse Creek-PVGA	57	20	16	7	57	22	14	7	56	15	22	7	56	20	17	7	58	23	12	7	58	26	9	7
Frahm-PVGA	58	18	14	10	58	17	15	10	56	15	19	10	55	16	19	10	59	17	14	10	59	18	13	10
South Mule Creek	35	21	23	21	38	24	17	21	36	15	28	21	35	21	23	21	43	26	10	21	44	26	9	21
Griff	83	8	7	2	83	8	7	2	80	6	12	2	83	8	7	2	83	8	7	2	83	8	7	2
Peters	46	17	32	5	50	21	24	5	46	12	37	5	46	17	32	5	51	21	23	5	52	22	21	5
Rock Creek-Coiner	30	15	30	25	30	15	30	25	29	12	34	25	30	15	30	25	31	21	23	25	31	21	23	25
Courtnay	76	10	14	0	76	10	14	0	73	9	18	0	76	10	14	0	76	12	12	0	78	12	10	0
Hub Butte-W5GA	76	9	9	6	77	10	7	6	73	6	15	6	77	10	7	6	76	11	7	6	77	12	5	6
Salmon Tract Iso. (Oanos)	25	20	40	15	27	23	35	15	25	20	40	15	25	20	40	15	36	28	21	15	37	28	20	15
Hub Butte-Davis	53	12	32	3	54	13	30	3	53	10	34	3	54	10	33	3	55	16	26	3	55	17	25	3
Fuller	19	46	32	3	20	46	31	3	19	39	39	3	20	42	35	3	25	43	29	3	27	45	25	3
Greene Private	40	10	27	23	40	10	27	23	38	10	29	23	40	10	27	23	41	12	24	23	43	12	22	23
Salmon Tract-Stewart	25	15	25	35	25	15	25	35	25	15	25	35	25	15	25	35	27	17	21	35	27	18	20	35
Soldier Creek	40	10	27	23	41	11	25	23	41	8	28	23	40	10	27	23	43	14	20	23	46	15	16	23
Barton-Schutte	73	4	20	3	73	6	18	3	70	4	23	3	73	4	20	3	73	6	18	3	73	8	16	3
Jones-Goat Spring	63	16	17	4	64	18	14	4	64	18	14	4	64	18	14	4	66	18	12	4	67	19	10	4
Kinsey-Lost Creek	38	23	20	19	38	23	20	19	38	23	20	19	35	20	26	19	42	27	12	19	44	30	7	19
West Kunkel	47	11	34	8	48	13	31	8	47	10	35	8	47	11	34	8	48	16	28	8	49	20	23	8
Amsterdam-Kunkel	53	17	24	6	53	17	24	6	53	14	27	6	53	17	24	6	53	20	21	6	53	22	19	6
Loughmiller	12	35	53	0	15	38	47	0	12	30	58	0	12	35	53	0	19	39	42	0	23	42	35	0
Salmon Tract Ind.	20	10	55	15	20	10	55	15	18	8	59	15	20	10	55	15	23	14	48	15	26	15	44	15
Lilly Grade	53	18	23	6	55	20	19	6	55	20	19	6	53	18	23	6	55	22	17	6	55	24	15	6
Salmon Tract-McCoy	15	20	50	15	15	20	50	15	15	20	50	15	15	20	50	15	20	24	41	15	21	26	38	15
South Big Creek	60	17	10	13	61	19	7	13	60	16	11	13	60	17	10	13	61	20	6	13	62	25	0	13
Randall Iso.	15	10	40	35	15	10	40	35	15	10	40	35	12	9	44	35	18	13	34	35	20	16	29	35
Lemmon-Ring	55	20	10	15	55	20	10	15	55	20	10	15	55	20	10	15	57	21	7	15	57	24	4	15
Cameron	49	20	13	18	49	20	13	18	49	19	14	18	45	17	20	18	50	21	11	18	50	25	7	18
Schnell-Salmon Tract	52	13	23	12	52	16	20	12	51	10	27	12	52	13	23	12	53	19	16	12	54	19	15	12
Magic Common	50	19	16	15	51	20	14	15	51	17	17	15	50	19	16	15	52	21	12	15	53	22	10	15
Sharp-Lost Creek	51	13	18	18	51	13	18	18	50	10	22	18	51	13	18	18	52	15	15	18	52	17	13	18
Salmon Tract Iso. (Stewart)	48	19	19	14	46	21	19	14	44	19	23	14	42	15	29	14	50	21	15	14	50	23	13	14
Lost Creek-U2	58	22	16	4	59	24	13	4	59	23	14	4	56	20	20	4	59	26	11	4	59	26	11	4
Salmon Tract-U2	83	6	8	3	83	6	8	3	50	12	35	3	83	6	8	3	83	7	7	3	83	8	6	3
Squaw Joe	60	19	11	10	60	19	11	10	60	15	15	10	60	19	11	10	61	19	10	10	62	20	8	10
Squaw Joe Iso.	60	19	11	10	60	19	11	10	60	19	11	10	60	19	11	10	61	19	10	10	62	20	8	10
Ridge	45	19	16	20	45	19	16	20	46	16	18	20	45	19	16	20	47	22	11	20	50	23	7	20
Ridge Iso.	43	23	16	18	43	23	16	18	43	23	16	18	43	23	16	18	45	23	14	18	47	25	10	18
Gravel Pit-Salmon Tract	86	6	7	1	55	12	32	1	53	12	34	1	86	6	7	1	86	6	7	1	86	6	7	1
Section 22-Salmon Tract	86	6	7	1	86	6	7	1	53	12	34	1	86	6	7	1	86	6	7	1	86	6	7	1
Highway Unit	72	11	13	4	72	11	13	4	55	18	23	4	72	11	13	4	73	12	11	4	73	13	10	4
East Kunkel	67	20	13	0	67	20	13	0	67	19	14	0	67	20	13	0	68	20	12	0	70	22	8	0
Highway-Kunkel	35	24	36	5	35	24	36	5	35	24	36	5	33	22	40	5	39	27	29	5	41	29	25	5
Kunkel Iso.	22	20	49	9	22	20	49	9	22	20	49	9	19	17	55	9	27	23	41	9	33	27	31	9
Hot Creek	40	25	25	10	40	25	25	10	40	25	25	10	40	25	25	10	41	27	22	10	43	29	18	10
Tews Iso.	25	15	45	15	25	15	45	15	25	15	45	15	25	15	45	15	29	23	33	15	32	24	29	15
Big Creek Iso.	34	10	45	11	34	10	45	11	34	10	45	11	34	10	45	11	38	12	39	11	41	13	35	11
WEIGHTED AVERAGE	43%				44%				43%				43%				46%				47%			

would result in increased ground cover overall. The proposed seeding maintenance projects would also increase cover. A rail and seed project is proposed for a site dominated by a thick stand of cheatgrass. As cheatgrass provides a great amount of cover, the conversion of this site to palatable forage plants would result in a cover decrease. Several individual projects in the burn and drill seed category would have similar results.

Proposed spray and drill seeding, burn and drill seeding, plow and drill seeding, and seeding maintenance would result in improved vegetative cover. These projects would help to offset adverse impacts resulting from Increased Livestock Use.

The seeding maintenance projects proposed under the Existing Stocking Level alternative would increase cover in the areas treated. The lack of any treatment on native ranges would not affect the existing cover.

The effects of no treatments on cover would be negligible. The Reduced Livestock Use would offset any effects that deteriorating seedings might have on the amount of cover.

The effects of no treatments on cover would be negligible. With No Livestock Grazing, cover would increase on all allotments in the planning unit.

WILDLIFE

An adverse impact to wildlife is defined as any change reducing population size below existing habitat carrying capacity, increasing population size above carrying capacity, or reducing existing carrying capacity. Beneficial impacts are defined as changes which restore depleted or oversized populations to carrying capacity or which increase carrying capacity for the species being considered. The carrying capacity for every wildlife species within a given area is finite. If a species is displaced into a fully occupied habitat, either population will decline to the original carrying capacity or overutilization will eventually deplete the habitat, resulting in an even greater decline in population.

Wildlife populations fluctuate according to a variety of environmental factors: quantity and quality of food, water and cover; climatic conditions; disease; social interactions; predation; and human activities. The total impact to wildlife populations would be a function of the interrelationships of the various environmental factors altered by the various alternatives.

BIG GAME

VEGETATIVE ALLOCATION. The forage allocation for big game under the Proposed Action would be sufficient to support present and projected mule deer and pronghorn antelope numbers. A breakdown of present and future big game AUMs is as follows:

Species	1980 AUMs	1990 AUMs
Mule Deer	2,654	4,366
Pronghorn Antelope	7	36
TOTAL	2,661	4,405

Under the Increased Livestock Use alternative a shortage of 1,111 AUMs necessary to meet future mule deer population needs, would not be provided. Competition for spring and winter forage would increase between mule deer and livestock on Western Stockgrowers (1,072 AUMs) and Schnell-Salmon Tract (39 AUMs). Antelope needs would be met.

For the Existing Stocking Level alternative there would be sufficient forage allocated for the estimated 1990 populations of antelope and mule deer.

Mule deer populations would respond favorably under Reduced Livestock Use. This alternative would not cause a shortage of spring forage, nor would it reduce the amount of palatable shrubs available for wintering deer. Tueller and Tower (1979) have documented shrub stagnation on winter areas totally protected from grazing or grazed only by mule deer. This loss of productivity poses a serious long-term threat to mule deer populations. Under this alternative, shrubs would be able to effectively compete with the grass and forb understory. The proposed level of grazing would enable the resource manager to manipulate livestock grazing to improve mule deer habitat. IDFG population goals through 1990 would be achieved and no long-term decline of winter range productivity would occur. Antelope would benefit from the reduction of livestock use through increases in forage, space, and carrying capacity.

The effects of the No Livestock Grazing alternative on big game would be mixed. Mule deer are successional species that do best in areas where subclimax vegetation stages are maintained via grazing, logging, fire, or other disturbance (Dasman 1964). Thus, proper levels of livestock grazing can enhance mule deer winter ranges as selective grazing pressure on grasses during the spring and summer promotes browse growth (Jensen et al. 1972; Smith and Doell 1968). Although cessation of livestock grazing in the late summer and fall would benefit mule deer winter range, carrying capacity would be reduced over the long term. No livestock grazing would cause the vegetative community to move slowly toward climax and mule deer numbers would decline along with the loss of winter range carrying capacity. IDFG management objectives through 1990 would still be achieved, but populations over the long term would decline because of reduced carrying capacity of the mule deer habitat.

Antelope would be favorably affected by the removal of livestock from the public lands. With competition for forage and space no longer an issue, antelope would benefit from increases in carrying capacity and populations. IDFG 1990 populations estimates would be met.

GRAZING SYSTEMS. Under the Proposed Action the effects of grazing systems on big game would vary according to species. See Table 4-10 for a breakdown of *critical mule deer winter and summer ranges* identified with respect to the proposed grazing systems.

The objective of any grazing system over continuous or season-long use is to improve range condition; however, depending on vegetation type and season of use, the opposite effect is possible. Researchers have shown that heavy livestock use in the early summer can increase vigor and production of browse species that are important as winter forage for mule deer (Jensen et al. 1974; Smith and Doell 1968). Midsummer to fall use in the same area can negate these benefits when domestic livestock shift to browse species as the grasses and forbs mature and lose nutritional value (Urness 1976). This shift to browse by cattle has been observed in the EIS area on 36 percent of the critical mule deer winter range. To prevent this shift from becoming a serious problem, livestock should not be allowed to graze critical mule deer winter range after

TABLE 4-10
ACRES AND PERCENT OF
CRITICAL MULE DEER HABITAT BY GRAZING SYSTEM

Type of Grazing System	Total Acres In Each Grazing System	Proposed Action Acres	Proposed Action Percent
	Winter/Summer	Winter/Summer	Winter/Summer
Rest Rotation	2,733/7,014	2,622/1,270	96/18
Deferred Rotation	65,065/42,088	12,620/3,290	19/8
Seasonal Use	23,869/- - -	16,520/- - -	69/--
Custodial	2,389/- - -	1,738/- - -	73/--

Type of Grazing System	Total Acres In Each Grazing System	Existing Livestock Level Acres	Existing Livestock Level Percent
	Winter/Summer	Winter/Summer	Winter/Summer
Rest Rotation	696/7,014	585/1,270	84/18
Deferred Rotation	21,944/7,826	2,830/2,760	13/35
Seasonal Use	68,128/33,453	29,245/400	43/1
Custodial	3,288/810	840/130	26/16

September 30. Livestock grazing occurs on nine percent of the critical mule deer summer range. Grazing should not be allowed prior to May 15 on native critical mule deer summer range. The direct competion which would occur would adversely affect the value of mule deer habitat from a nutritional point of view as well as with respect to cover. See Table 4-11 for an allotment analysis. Under the Proposed Action, 82 percent of the critical winter range would be grazed after September 30 and 86 percent of the critical summer range would be grazed prior to May 15. Seasonal use, causing a long-term decline in forage production resulting from the lack of rest from livestock grazing, would continue on 40 percent of the critical mule deer range. The main impact between livestock grazing and antelope use would be the dietary overlap during the period of 4/15 to 6/15 on the Point Ranch allotment. At this time, livestock use reduces the forb and grass supply available to antelope (Pronghorn Antelope Workshop 1978).

The impacts of the Increased Livestock Use alternative would generally be the same as those described under the Proposed Action. One important

TABLE 4-11
CRITICAL MULE DEER HABITAT - ALLOTMENT ANALYSIS

Allotment	Grazing System[1] Existing	Grazing System[1] Proposed Action	Period of Use Existing & Proposed	%[2]
CRITICAL WINTER RANGE				
Western Stockgrowers	SU	SU	4/16 to 5/25 10/16 to 11/15	70
Point Ranch	SU	DR	4/1 to 12/31	21
Moore-Lost Creek	SU	SU	5/1 to 5/31	25
North Big Creek	C	C	4/1 to 11/30	40
Noh Sections	SU	DR	5/1 to 11/30	47
Frahm-PVGA	RR	RR	5/1 to 11/30	84
Soldier Creek	SU	SU	6/15 to 8/14	42
Cameron	SU	C	7/1 to 9/15	97
Schnell-Salmon Tract	DR	DR	4/16 to 10/31	7
Lost Creek-U2	SU	RR	4/20 to 5/31 11/15 to 1/7	100
Squaw Joe	SU	DR	4/11 to 8/17	28
Squaw Joe Iso.	C	C	3/1 to 2/28	19
Ridge	DR	DR	5/1 to 10/31	27
CRITICAL SUMMER RANGE				
Point Ranch	SU	DR	4/1 to 12/31	1
Mule Creek-PVGA	RR	RR	5/1 to 11/30	18
Sharp-Lost Creek	DR	DR	5/20 to 11/19	28
Ridge	DR	DR	5/1 to 10/31	36
Ridge Iso.	C	DR	6/1 to 11/30	16

[1] GS = Grazing System
C = Custodial RR = Rest Rotation
DR = Deferred Rotation SU = Seasonal Use
[2] % = Percent of total critical mule deer habitat in allotment under the grazing system.

difference should be noted. The use domestic livestock would make on important mule deer winter shrubs would not be limited to 20 percent. IDFG population projections for big game would not be met on the Western Stockgrowers and Schnell-Salmon Tract allotments in light of the increased livestock use. An unknown number of deer could die during periods of high snowfall because of a lack of adequate forage. Less than one percent of the critical forage would be grazed under seasonal use (without rest). Grazing seasons would be the same under this alternative with the same results on mule deer and antelope habitat.

For the Existing Livestock Use alternative for big game, the analysis of impacts developed for the Proposed Action also applies here. A breakdown of grazing systems for critical mule deer winter and summer range is shown in Table 4-10. Late fall and early spring livestock grazing would continue to occur on 83 percent of the critical mule deer range. And 71 percent of the critical mule deer range would continue to be grazed under seasonal use resulting in a continued long-term decline in forage production.

Impacts to big game under the Reduced Livestock Use alternative would occur in the same manner as described in the proposed action analysis but to a lesser degree due to the decreased livestock numbers. Elimination of grazing prior to May 15 on three allotments containing 90 percent of the critical mule deer summer range on public land would benefit mule deer populations by eliminating competition from livestock for forage species. Seasonal use grazing would continue on 71 percent of the crtical mule deer habitat.

Big game habitat would improve under the No Livestock Grazing alternative. Cessation of late fall and early spring grazing on critical mule deer winter and summer ranges and on antelope range would ensure the availability of maximum amounts of forage for big game, although shrub stagnation over the long term would eventually reduce the amount of forage available.

RANGE IMPROVEMENTS. Under the Proposed Action, mule deer would be the major big game species affected by the proposed range improvements. The development of big game guzzlers would benefit mule deer on their critical summer range. Impacts from vegetation manipulation would depend on the percent kill of brush and the location and distribution of leave areas. In the short term, proposed manipulations would adversely affect approximately 7 percent (2,357 acres) of critical mule deer winter range and 25 percent (1,155 acres) of critical summer range.

Burning would maximize the *edge effect,* improve understory production and maintain fingers and pockets of sagebrush cover. The two percent of critical mule deer winter range scheduled to be burned and drill seeded to perennial grasses and forbs would enhance wildlife habitat values. One negative aspect of burning would be that bitterbrush will not resprout if the soil is not wet or it does not rain shortly after the fire (Wright 1972). The loss of bitterbrush on critical mule deer winter range would be detrimental to the population, especially during a severe winter.

Thirty percent of critical mule deer range is scheduled for chemical spraying. This would increase understory production and largely eliminate shrub overstory. The short-term impact would be a loss of winter browse and thermal cover and spring fawning cover. Over a 15-20 year period, big sagebrush would reinvade the treated areas, and current cover and forage condition would generally be reestablished. Maintenance required to preserve these areas would result in adverse impacts to mule deer if adequate leave areas are not retained.

See Table 4-12 for an analysis of land treatments on critical mule deer summer and winter range.

The range improvements proposed for the Increased Livestock Use alternative would pose the most adverse impacts to mule deer. Those impacts brought out in the proposed action analysis would also apply to this alternative, except to a greater degree. Brush control would affect 45 percent (15,151 acres) of critical mule deer winter range and 66 percent (2,988 acres) of critical summer range. Seedings on treated areas would consist of vegetation most suitable to livestock, such as crested wheatgrass. This would adversely affect wintering and breeding deer populations by reducing available browse species and cover. The effect of the spraying on critical ranges would be considered adverse because of the shape of and lack of leave areas in the proposed treatment areas. Spraying in the spring would affect mule deer fawning through a reduction in available cover.

The only range improvement scheduled under the Existing Livestock Use alternative is seeding maintenance as discussed in the proposed action. One

TABLE 4-12
CRITICAL MULE DEER HABITAT -
LAND TREATMENT ANALYSIS

ALLOTMENT	a	b	Proposed Action c	d	e	Increased Livestock Use f	g	h
CRITICAL WINTER RANGE								
Western Stockgrowers	23,505	16,380	140	SMS	1	7,415	S	51
						120	SD	
						130	BD	
						600	D	
						140	SMS	
Point Ranch	33,453	6,990	- -		--	340	BD	9
Moore-Lost Creek	80	20	20	SMS	100	20	SMS	100
North Big Creek	1,011	400	- -		--	400	S	100
Noh-Sections	1,455	680	- -		--	440	S	65
Frahm-PVGA	696	585	- -		--	258	S	44
Soldier Creek	284	120	71	S	59	120	S	100
Cameron	1,378	1,338	- -		--	982	S	73
Schnell-Salmon Tract	15,121	990	148	S	23	308	S	55
			80	SD		240	SD	
Lost Creek-U2	2,037	2,037	896	S	44	1,792	S	88
Squaw Joe	5,936	1,680	570	BD	34	940	BD	56
Squaw Joe Iso.	2,277	440	- -		--	170	S	39
Ridge	6,823	1,840	202	BD	23	160	S	40
			230	SD		307	SD	
						269	BD	
Totals	94,056	33,500	2,357		7	15,151		45
CRITICAL SUMMER RANGE								
Point Ranch	33,453	400	- -		--	200	BD	50
Mule Creek-PVGA	7,014	1,270	907		71	1,050	S	83
Sharp-Lost Creek	1,002	280	248		89	248	SMS	89
Ridge	6,823	2,480	- -		--	1,490	S	60
Ridge Iso.	810	130	- -		--	- -	- -	--
Totals	49,102	4,560	1,155		25	2,988		66
Winter & Summer Total	143,158	38,060	3,512		9	18,139		48

a = Acres of Public Land in Allotment
b = Acres of Critical Mule Deer Habitat on Public Land in Allotment
c,f = Acres of Habitat in Allotment Being Treated
d,g = Type of Land Treatment
BD = Burn and Drill Seed
D = Drill Seeding
PD = Plow and Drill Seed
S = Spray
SD = Spray and Drill Seed
SMB = Seeding Maintenance, Burn
SMS = Seeding Maintenance, Spray
e,h = Percent of Habitat in Allotment Being Treated

percent of the critical winter range and five percent of the critical summer range would experience a lack of cover for mule deer if adequate leave areas are not retained.

No range improvements are scheduled under the Reduced Livestock Use alternative. Since there would be no vegetative manipulation, there would be less edge and mixing of habitat types. The proposed big game guzzlers and other wildlife projects would benefit big game.

Under the No Livestock Grazing alternative, no range improvements have been scheduled. Impacts related to vegetative manipulation discussed under the decreased livestock use analysis would also apply to this alternative.

UPLAND GAME

VEGETATIVE ALLOCATION. Under the Proposed Action the effects of forage allocation on upland game would vary widely depending on the season of use, stocking rate and the specific species of upland game being considered. No specific amount of forage would be allocated to any upland game species, but habitat would be improved on those six allotments where grazing is presently above carrying capacity and on areas where more forage and cover would be available. Ground nesting birds would still be susceptible to nest desertion and/or trampling by livestock. Sage grouse would benefit from an initial livestock forage allocation seven percent lower than the six-year average licensed use level on critical sage grouse habitat.

Effects on sage grouse deserve special attention since this species would be significantly affected. Livestock grazing affects sage grouse habitat in one or more of the following ways: (1) changes in vegetation composition, density and structure; (2) disturbance of nesting hens; (3) removal of brood-rearing cover in meadows (Call 1979); and (4) removal, from brood-rearing areas of succulent forbs which are very important to young sage grouse (Klebenow and Gray 1968). A rapid removal of forbs by livestock on spring and summer ranges would have an adverse impact on juvenile sage grouse, especially in those areas where forbs are scarce in the vegetative composition (Call 1979). Any management alternative which involves livestock grazing would adversely affect sage grouse through one or more of these four means.

For the Increased Livestock Use alternative, forage allocation would result in adverse impacts to upland game. Ground nesting birds would be more susceptible to nest desertion and/or trampling by the increased number of cattle throughout the EIS area. The initial forage allocation on critical sage grouse habitat would be 15 percent greater than the present situation. This higher stocking level would result in adverse impacts due to lack of succulent forbs in brood-rearing areas because of the rapid removal of forbs by livestock on spring and summer ranges.

The Existing Stocking Level alternative would allow most upland game species on those allotments grazed at or below their inventoried capacities, to maintain current population levels. Sage grouse habitat and population trends would not improve due to impacts discussed under the Proposed Action. Riparian areas would continue to provide sage grouse habitat below potential due to overgrazing of brood-rearing cover and heavy utilization of forbs which are important to young sage grouse.

All upland game would benefit from the Reduced Livestock Use alternative. Sage grouse populations would increase as a result of improved nesting and brood-rearing cover due to a 36 percent decline in livestock grazing on critical habitat. Limited livestock grazing would, however, prevent important uplandmeadows from becoming rank and undesirable for sage grouse. Since reduced allocations of livestock AUM's would not prevent concentration of livestock near water sources, all upland game species would continue to be adversely affected by an impaired riparian habitat unless riparian areas were protected.

All upland game would beneift from the No Livestock Grazing alternative. In the short term, enhanced riparian areas would provide excellent habitat for quail and sage grouse. Succulent forb growth would be more available for spring-summer forage. Nesting and brood-rearing cover would improve. Physical disturbance from livestock would cease. Brood-rearing success for all species would increase throughout the EIS area if other adverse factors (weather, predation, human disturbance) remain constant. Over the long term, many wet meadows would become choked with dense vegetation and be less productive to sage grouse as the forb component of the plant community declined and birds in search of insects were unable to penetrate the dense vegetation.

GRAZING SYSTEMS. The grazing systems outlined in the Proposed Action would have both beneficial and adverse impacts on upland game. Most upland game species would benefit from improved rangeland conditions and the periodic rest treatments (see Table 4-13). Rest-rotation and deferred rotation grazing systems would concentrate livestock use in sage grouse nesting and brood-rearing habitat during the important brood-rearing period. In the long term, livestock numbers in these areas would be 29 percent greater than the six-year average licensed use level. Increased mortality from stress and nest desertion would occur in the critical nesting/brood-rearing areas which are grazed; however, this would be partially offset by higher production in the rest fields. *Critical nesting and brood-rearing habitat* broken down with respect to the proposed grazing systems is shown in Table 4-13. Seventeen percent of the critical habitat would be grazed under seasonal use (no rest) with a resulting long-term decline in vegetation adversely affecting sage grouse - reduced cover, reduced forage.

Riparian areas are highly preferred by sage grouse for brood rearing. Proposed rest-rotation and deferred grazing systems would provide periodic rest of the riparian vegetation. Increased forage and cover on riparian areas would enhance sage grouse habitat during the rest treatment. Production would be high in the short term.

Livestock use prior to June 15 would conflict with nesting sage grouse since they nest from mid-April to early June. See Table 4-14 for an allotment analysis.

The Increased Livestock Use alternative would affect upland game in the same manner but to a greater degree than specified under the Proposed Action analysis. There would be increased disturbance to existing nesting areas due to more concentrated livestock use resulting from grazing systems (concentrated use in pastures). More areas would be adversely affected due to increased livestock use. Less than one percent of critical habitat would be grazed under seasonal use.

For the Existing Stocking Level alternative, impacts on upland game would relate primarily to sage grouse. The analysis developed for the Proposed Action, in general, applies here. Table 4-13 provides a breakdown of grazing

TABLE 4-13
ACRES OF CRITICAL SAGE GROUSE HABITAT BY GRAZING SYSTEM

Type of Grazing System	Proposed Action Acres	Existing Stocking Level Acres
Rest-Rotation	18,517	16,278
Deferred Rotation	59,379	13,895
Seasonal Use	16,725	64,378
Custodial	2,476	2,546

systems in critical nesting and brood-rearing habitat. Seasonal use grazing would continue on 65 percent of the critical sage grouse habitat during the nesting and brood-rearing period resulting in increased competition for forage and reduced brood-rearing cover. These adverse impacts would continue over the long term as vegetation continues to decline due to the lack of rest from livestock grazing in these areas.

Impacts to upland game under the Reduced Livestock Use alternative would occur in the same manner but to a lesser degree than described in the Proposed Action anaylsis. This would be due to decreased livestock concentrations in critical sage grouse areas. In addition, the period of use on ten allotments containing 61 percent of the critical sage grouse habitat would be reduced with no grazing prior to June 10.

The lack of livestock disturbance to nesting species under the No Livestock Grazing alternative would be benficial to upland game habitat.

RANGE IMPROVEMENTS. Under the Proposed Action water developments would benefit all upland game species in the EIS area. Those water developments to be fenced would provide an excellent source of non-competitive habitat.

Sage grouse would be the main upland game species affected by the proposed range improvements. Impacts from vegetation manipulation would depend on the percent kill of brush and the location and distribution of leave areas. Carrying capacity, degree of stress, and possible grouse displacement would be subsequently influenced. In the short term, proposed manipulations would adversely affect approximately 13 percent (12,477 acres) of the critical sage grouse nesting and brood-rearing habitat in the EIS area. Over the long-term, if adequate leave areas are not retained, maintenance projects would adversely impact sage grouse populations.

Burning can create a diversity of usable sage grouse habitats. The edge effect would be enhanced. Sage grouse habitat burned in small patches (Klebenow and Beall 1977) and on a rotation basis would be the most beneficial to sage grouse.

Several sage grouse studies have found that strutting males, on or near sprayed areas, decreased from 49 to 100 percent within four years of the spraying. One study found that the birds will continue to use a sprayed strutting ground if surrounding nesting and brood rearing habitat is not made uninhabitable (Call 1979). Sage grouse habitat values would be restored and enhanced in 15-20 years as big sagebrush reoccupied the sprayed areas only if maintenance projects in these treated areas retained adequate leave areas.

TABLE 4-14
CRITICAL SAGE GROUSE HABITAT -
ALLOTMENT ANALYSIS

Allotment	Grazing System[1] Existing	Grazing System[1] Proposed Action	Period of Use Existing & Proposed	%[2]
J. E. Baker-Lost Creek	DR	DR	7/1 to 11/30	95
Western Stockgrowers	SU	SU	4/16 to 5/25	71
			10/16 to 11/5	
Point Ranch	SU	DR	4/1 to 12/31	87
Whiskey Creek	SU	DR	4/1 to 12/31	3
Moore-Lost Creek	SU	SU	5/1 to 5/31	100
North Big Creek	C	C	4/1 to 11/30	100
Kerr-Lost Creek	RR	RR	5/1 to 10/31	100
Noh-White Rock	DR	DR	4/25 to 6/30	100
			11/1 to 11/30	
Noh-Sections	SU	DR	5/1 to 11/30	93
Mule Creek-PVGA	RR	RR	5/1 to 11/30	79
Horse Creek-PVGA	RR	RR	5/1 to 7/15	100
			10/15 to 11/15	
Frahm-PVGA	RR	RR	5/1 to 11/30	89
South Mule Creek	SU	DR	5/16 to 7/31	65
Greene Private	C	C	5/16 to 9/30	53
Soldier Creek	SU	SU	6/15 to 8/14	4
Jones-Goat Springs	RR	RR	5/1 to 8/15	9
Kinsey-Lost Creek	C	C	5/1 to 10/31	100
South Big Creek	SU	RR	10/1 to 10/30	100
Cameron	SU	C	7/1 to 9/15	7
Schnell-Salmon Tract	DR	DR	4/16 to 10/31	44
Magic Common	SU	DR	5/16 to 9/30	100
Sharp-Lost Creek	DR	DR	5/20 to 11/19	48
Lost Creek-U2	SU	RR	4/20 to 5/31	34
			11/15 to 1/7	
Squaw Joe	SU	DR	4/11 to 8/17	52
Squaw Joe Iso.	C	C	3/1 to 2/28	18
Ridge	DR	DR	5/1 to 10/31	40
Ridge Iso.	C	DR	6/1 to 11/30	20
Hot Creek	C	C	11/1 to 11/30	100
Big Creek Iso.	C	C	4/1 to 11/30	100

[1] GS = Grazing System
C = Custodial RR = Rest Rotation
DR = Deferred Rotation SU = Seasonal Use
[2] % = Percent of total critical sage grouse habitat in allotment under the grazing system.

The seeding of succulent forbs into treated areas would enhance sage grouse habitat.

Sage grouse would be the major upland game species affected by the Increased Livestock Use alternative. Those impacts brought out in the Proposed Action analysis would also apply to this alternative. Brush control would affect 36 percent (34,745 acres) of critical sage grouse habitat. Seedings on treated areas would consist of vegetation most suitable to livestock, such as crested wheatgrass. The expanse of this monoculture-type situation would

significantly reduce sage grouse populations due to inadequate nesting, brood-rearing, winter, and escape cover. See Table 4-15 for an analysis of land treatments on critical sage grouse range.

The only range improvement scheduled under the Existing Stocking Level alternative is seeding maintenance as outlined in the Proposed Action. A small percentage of the existing seedings which have good sage grouse nesting habitat, due to sagebrush reinvasion, would be destroyed. Sage grouse nesting and brood-rearing areas with overly dense sagebrush would continue to remain in poor habitat condition and would receive little use by sage grouse.

No range improvements are scheduled under the Reduced Livestock Use alternative. The wildlife projects to be developed would enhance the sage grouse habitat. The lack of new land treatments or maintenance of existing treatments would result in sage grouse nesting and brood-rearing habitats becoming choked with dense vegetation and thus being less productive. Sage grouse productivity would decline if natural factors did not open up these critical habitat areas.

Under the No Livestock Grazing alternative, the same adverse impacts would occur as with reduced use.

AQUATIC WILDLIFE HABITAT

VEGETATIVE ALLOCATION. In both the short and long-term aquatic wildlife habitat would continue to be adversely affected, because, under the Proposed Action, livestock would still tend to heavily utilize riparian areas. The quality and quantity of waterfowl nesting cover would continue below optimum. New riparian growth would be inhibited and streambank erosion would continue.

A continued decline in aquatic wildlife habitat would result with Increased Livestock Use. The decrease in habitat condition due to livestock numbers would be slight to moderate because livestock use is already concentrated in these habitat areas. Nesting conditions for waterfowl would be adversely affected due to the heavy grazing pressure. Waterfowl nest density and nesting success are both a function of the quantity and quality of nesting cover, and heavy livestock grazing on wetlands impacts the composition and density of native marsh vegetation. Hence, waterfowl production values are severely reduced (Molini 1977). Furbearer habitat would be adversely affected by the 23 percent increase in grazing pressure which would occur in the EIS area.

The Existing Stocking Level alternative would have long-term adverse impacts on aquatic wildlife habitat. As mature trees and shrubs die, no new growth would replace them. Streambank erosion would continue, which in turn would lead to increased sedimentation in the stream. Pools would decrease in size and number and water temperature would increase. Spawning areas would be reduced. Waterfowl nesting cover would continue to be lacking due to concentration of livestock around water.

Aquatic wildlife habitat would benefit under the Reduced Livestock Use alternative. This would be due to the protective fencing rather than forage allocation since livestock would still congregation in unprotected riparian areas. Waterfowl and furbearers would benefit from reduced stocking levels. Waterfowl populations would increase as a result of improved nesting cover.

TABLE 4-15
CRITICAL SAGE GROUSE HABITAT -
LAND TREATMENT ANALYSIS

ALLOTMENT	a	b	Proposed Action c	d	e	Increased Livestock Use f	g	h
J. E. Baker-Lost Creek	2,598	2,478	593	SMS	24	790	SMS	32
Western Stockgrowers	23,505	16,635	140	SMS	1	7,455	S	45
						600	DS	4
						140	SMS	1
						160	SD	1
Point Ranch	33,453	29,113	277	SD	1	553	SD	2
			181	PD	1	362	PD	1
						1,120	BD	4
Whiskey Creek	18,719	620						
Moore-Lost Creek	80	80	43	SMS	54	80	SMS	100
North Big Creek	1,011	1,011				720	S	71
Kerr-Lost Creek	6,666	6,666	502	S	8	1,004	S	15
			432	SD	6	863	SD	13
			2,752	SMS	41	3,751	SMS	56
Noh-White Rock	1,597	1,597	349	SMS	22	465	SMS	29
Noh-Sections	1,455	1,355				753	S	56
Mule Creek-PVGA	7,014	5,554	80	S	1	300	S	5
			882	SMS	16	1,176	SMS	21
Horse Creek-PVGA	3,322	3,322	180	SD	5	360	SD	11
			1,360	SMS	41	1,812	SMS	55
Frahm-PVGA	696	616				616	S	100
South Mule Creek	3,018	1,958	60	S	3	180	S	9
			20	SD	1	60	SD	3
Greene Private	321	170						
Soldier Creek	284	10	10	S	100	10	S	100
Jones-Goat Springs	1,386	120						
Kinsey-Lost Creek	317	317						
South Big Creek	1,549	1,549	757	S	49	1,515	S	98
Cameron	1,378	90				50	S	56
Schnell-Salmon Tract	15,121	6,600	40	S	1	60	S	1
			620	SD	9	130	BD	2
			309	SMB	5	1,260	SD	19
						309	SMB	5
Magic Common	9,168	9,168	1,000	SD	11	3,925	SD	43
Sharp-Lost Creek	1,002	480	80	S	17	159	S	33
			248	SMS	52	321	SMS	67
Lost Creek-U2	2,037	690	560	S	81	690	S	100
Squaw Joe	5,936	3,110	570	BD	18	1,320	BD	42
Squaw Joe Iso.	2,277	410						
Ridge	6,823	2,740	230	SD	8	1,100	S	40
			202	BD	7	307	SD	11
						269	BD	10
Ridge Iso.	810	160						
Hot Creek	158	158						
Big Creek Iso.	320	320						
TOTALS		97,097	12,47		13%	34,745		36%

a = Acres of Public Land in Allotment
b = Acres of Critical Sage Grouse Habitat on Public Land in Allotment
c,f = Acres of Habitat in Allotment Being Treated
d,g = Type of Land Treatment
BD = Burn and Drill Seed SD = Spray and Drill Seed
D = Drill Seeding SMB = Seeding Maintenance, Burn
PD = Plow and Drill Seed SMS = Seeding Maintenance, Spray
S = Spray
e,h = Percent of Habitat in Allotment Being Treated

Limited grazing removes some of the dense plant cover which nesting ducks avoid. Furbearers would benefit from the herbaceous cover that would increase in areas of aquatic habitat.

The No Livestock Grazing alternative would have an overall beneficial impact on the aquatic wildlife habitat. An increase in riparian vegetation along streambanks coupled with the decrease of unstable banks would increase spawning and pool areas, improve water quality by reducing temperature and sediment load, and increase trout numbers. Removing livestock from along streams would generally improve the primary productivity of streams. Initally, waterfowl would benefit from an improved riparian habitat. There would be an increase in forage around streams and reservoirs presently being overgrazed. This forage increase would provide more nesting cover. In the long term thick overgrown vegetation would reduce waterfowl nesting, lowering the area's productivity. Increased herbaceous cover would favorably affect furbearers by providing improved habitat conditions.

GRAZING SYSTEMS. Under the Proposed Action approximately 17 miles of riparian habitat would slightly improve as a result of proposed changes in grazing sys-systems on two allotments (Magic Commmon and Point Ranch). Overall, implementation of proposed grazing systems would not improve aquatic wildlife habitat conditions. This is primarily because riparian systems would not receive adequate rest.

Riparian areas are often a source of conflict between wildlife and domestic livestock. Riparian habitats receive more wildlife use per unit area than any other single vegetative type (Kelly et al. 1975), regardless of the grazing system. Periodic rest of riparian areas in allotments where rest and deferred rotation are employed may increase carrying capacity during the rest treatment, however, this increase is limited to only the time of the rest treatment. Platt and Roundtree (1972) and Eckert (1975) concluded that riparian vegetation receiving one year of rest did not recover adequately. Although pastures may recover with one year of rest, the stream banks do not. Without adequate protection, the natural replacement of decadent shrubs and trees in riparian habitats cannot occur.

The long-term loss of the canopy cover in a riparian habitat is detrimental to wildlife. According to Hormay (1970), "The growth of herbaceous plants is not affected significantly by grazing after reserves are stored. The reserves and growing points are out of reach of animals. In woody plants, however, reserves and growing points are exposed, and grazing after reserves are stored and during the dormant period can harm these plants. Removal of growing points does the most damage." In a 1976 memo to BLM's Rock Springs (Wyoming) District Manager, Hormay amplifies on the same point: "Vegetation in certain areas, such as meadows and drainage ways, are invariably closely utilized under any stocking rate or system of grazing. Such use may be detrimental to wildlife, aesthetic, recreational or other values. Where this is the case about the only way to preserve values is to fence the area from grazing. Reducing livestock or adjusting the grazing season usually will not solve such a problem." Armour (1977) stated that "other than the fencing of streams to exclude livestock, there are few known practical practices which can be implemented to improve or maintain quality habitat for trout."

Spring grazing of riparian habitats would affect waterfowl nesting. The nesting cover would be destroyed and the nests trampled. The main impact to furbearers would occur from early spring livestock use and concentrated grazing use under rest-rotation grazing systems. The reduction of vegetation would reduce cover and small animal prey base productivity.

Impacts on aquactic wildlife resulting from the Increased Livestock Use alternative would be similar to, but greater than, those under the Proposed Action. The concentration of livestock resulting from grazing management systems would intensify the affects on riparian habitat.

Under the Existing Stocking Level little opportunity for improved aquatic wildlife habitat conditions is afforded. Riparian areas would continue to be heavily utilized whenever livestock are present. Impacts analyzed in the proposed action also hold true for this alternative.

The grazing system impacts on aquatic wildlife habitat for the Decreased Livestock Use alternative would occur in the same manner and degree as described in the proposed action analysis. Livestock would still tend to concentrate in unprotected wet areas in the pastures being grazed at any given time.

For the No Livestock Grazing alternative aquatic wildlife habitat would greatly benefit. Habitat conditions for waterfowl and furbearers would improve. Waterfowl nest trampling and nesting habitat degraded by early spring use would be eliminated.

RANGE IMPROVEMENTS. Under the Proposed Action 10.9 miles of fence would protect 35.5 acres of riparian habitat. Spring, reservoir, and pothole developments would have a short-term adverse effect on the riparian vegetation and the wildlife associated with them. Over the long run, the fenced riparian areas around springs and potholes, coupled with possibly creating new areas around reservoirs, would result in improved cover and increased food. Waterfowl would nest around some of the reservoirs.

For the Increased Livestock Use alternative there would be no protective fencing of riparian areas. Proposed brush control near streams would decrease water quality due to increased sedimentation.

The only range improvement under the Existing Stocking Level alternative is seeding maintenance. The lack of any protection for riparian areas would result in continued over-utilization of these areas by livestock with 70 percent of the areas remaining in fair or poor condition.

Under the Reduced Livestock Use alternative no range improvements would be developed. Wildlife developments would include pothole development and the construction of 24.45 miles of fence which would protect 207 acres of riparian habitat.

Under the No Livestock Grazing alternative no impacts would occur since there would be no range improvements.

THREATENED, ENDANGERED, SENSITIVE, HIGH INTEREST, NON-GAME WILDLIFE

VEGETATIVE ALLOCATION. Under the Proposed Action, mountain quail, river otter, beaver, and other non-game species associated with riparian areas would be adversely affected by concentrated livestock use. Impacts would include a loss of protective and nesting cover and food supply and quality problems.

Species mentioned above would be adversely affected in the same manner but to a greater degree by Increased Livestock Use. Collectively, non-game species

habitats would be adversely affected by the 23 percent increase in grazing pressure that would occur throughout the EIS area.

For the Existing Stocking Level alternative there is sufficient forage available for existing wildlife species. There would be no appreciable change in species populations.

All species would benefit from Reduced Stocking Levels. Since forage availability would generally increase, non-game species would have to compete less with livestock and would profit from reduced physical and social interaction with grazing animals. Due to improved habitat conditions, the prey base would increase. There would be sufficient grazing to maintain open hunting areas for raptors and open nesting areas for the long-billed curlew and western burrowing owl. Since reduced allocations of livestock AUMs would not prevent concentration of livestock near water sources, the riparian-associated species would continue to be adversely affected by overgrazed riparian habitat.

Improved riparian habitats brought about by No Livestock Grazing would benefit all species. Increased herbaceous cover would favorably affect non-game species as populations would increase due to improved habitat, increased food supply, and freedom from physical and social contact with livestock. While some raptors require open areas for hunting, an increased prey base would outweigh the affects of increased cover. The long-billed curlew and western burrowing owl would be adversely affected from an overgrowth of vegetation at nesting sites unless carefully controlled vegetative thinning projects were undertaken.

GRAZING SYSTEMS. Under the Proposed Action several species would be affected by the various grazing systems. The ferruginous hawk is very prone to nest desertion if subject to human disturbance during the egg incubation period (Howard 1974). Leon Powers has documented that the ferruginous hawk does use alternate nest sites (cited in Snow 1974), thus, it is difficult to determine what portion of nest desertion can be directly attributed to the human activity associated with livestock grazing in the spring. This would also be true for other nesting raptors. Spring grazing (prior to June 15) in long-billed curlew habitat would result in nest abandonment and/or actual trampling and destruction of nests. Livestock would also trample burrows and collapse tunnels of western burrowing owls. Since livestock tend to concentrate in wet areas, mountain quail nests, river otter habitat, and non-game species would be disturbed. The main impact to non-game wildlife would occur from early spring livestock use and concentrated grazing use under rest-rotation grazing systems. In rest-rotation systems, the benefits of rested pastures are offset by heavy use in other pastures (Buttery and Shields 1975). The reduction of vegetation would reduce cover and small animal prey base productivity. Species such as white-footed mice and sage thrashers, which have small home ranges compared to the more mobile species such as coyotes and magpies, would be more severely affected. Several authors have found that grazing affects the species diversity and density of breeding birds (Weins and Dyer 1975, Buttery and Shields 1975 and USDA 1980). Seasonal grazing, especially in the spring (breeding season), and deferred systems without a rested pasture would be detrimental to birds (Buttery and Shields 1975). Reynolds (1978) found that on existing crested wheatgrass seedings that were grazed, only a fraction of the animals found in native sagebrush areas were present. Black-tailed jackrabbits were the only species to maintain population levels in grazed and reseeded areas at a density similar to that found under controlled conditions.

Increased Livestock Use would affect these species in the same manner, but to a greater degree (due to the greater numbers of livestock), as specified under the Proposed Action analysis.

Continuing with the Existing Stocking Level would afford little opportunity for improved wildlife habitat. Riparian areas would continue to be heavily grazed. A continued, long-term decline in carrying capacity for riparian-associated wildlife species such as the river otter and beaver, would be expected.

The grazing system impacts on these species for the Reduced Livestock Use alternative would occur in the same manner but to a lesser degree, except for riparian situations, as described in the Proposed Action analysis.

Both beneficial and adverse impacts would occur from the No Livestock Grazing alternative. The overall benefit would be general improvement of wildlife habitat condition. Riparian areas would greatly improve. Nesting disturbance to the ferruginous hawk, long-billed curlew, western burrowing owl, mountain quail, and other wildlife species, by livestock and livestock-related activities, would be abated. The adverse impact would be with the western burrowing owl. This species utilizes disturbed, over-grazed situations and small particles of dried cow manure at the nest site. Long-billed curlew would be affected if short vegetative areas were not made available at nesting sites.

RANGE IMPROVEMENTS. The Proposed Action would have both beneficial and adverse impacts upon these species. All water developments would benefit populations by improving the distribution of water. Trough overflow areas, could create new riparian sites. Cover and food around springs would increase because of proposed fencing. Construction of range improvements during the spring and early summer would adversely affect the nesting success of sensitive and high interest raptors. Vegetative treatments would impact ferruginous hawks by affecting prey populations when sagebrush was converted to grass (Call 1979). Converting brushland to grass would reduce numbers of curlew prey. Long-billed curlew nesting habitat would be enhanced through the reduction of brush. Rangeland conversions would have the greatest impact on burrowing owls. First, nesting habitat would be enhanced, but the disturbance of existing habitat would offset any benefits gained. Secondly, vegetative treatments would change prey numbers and species present. Gleason (1978) suggests that the availability of rodents could be an important regulator of brood size, probably through post-hatching mortality. Rodent numbers would decrease in land treatment areas. Mountain quail would be adversely affected by brush treatment in draws and wet areas. The effect of the proposed land treatments on non-game species would be varied. Due to the increased level of disturbance there would be major changes in prey numbers and type. Existing sagebrush stands with little or no grass and forb understory would respond with greater vegetative diversity after treatment. In these 13,503 treated acres, non-game species dependent on dense stands of sagebrush would decrease, while those species dependent upon grassland or mixed grass/shrub stands would increase. With periodic maintenance of treated areas wildlife populations would be expected to remain the same if adequate leave areas are retained. Over the long term, shrubs would reestablish, returning wildlife populations and diversity to pre-treatment levels. For maintenance of existing seedings, over the long-term, present distribution and numbers of species are expected to remain the same. Burning would be both beneficial and detrimental to birds. Fire would create an edge effect and increase diversity of birds. The adverse impact would be a reduction of sagebrush-dependent species in project areas.

The burning would create more edge effect for small mammals, but they would also be more susceptible to predation in the reduced canopy cover. Prescribed burning would have an overall beneficial impact to most species. Plowing of sagebrush would reduce dependent species and reseeding would decrease diversity and density of non-game birds. On the Idaho National Engineering Laboratory, Reynolds (1978) found a reduction of vegetation diversity and a reduction in the number and diversity of breeding birds on former sagebrush lands planted with crested wheatgrass. Seeding with a crested wheatgrass mixture would produce a near monoculture and have a negative effect on native wildlife populations. Large scale treatment projects, such as spraying, are detrimental to most bird populations. Studies of sprayed areas in Montana and Wyoming found a 54 and 62 percent decrease in the population of Brewer's sparrow (Braun et al. 1976). This decrease was in response to a total kill of sagebrush. Obligate species do not use areas of total sagebrush kill. Plowing, seeding, and spraying would have negative impacts on most species in the area of the treatments.

Increased Livestock Use would affect all species in the same manner but to a greater degree than portrayed in the Proposed Action. Under this alternative, 49,059 acres of native vegetation would be treated. The proposed fencing around springs would not be as beneficial since the surrounding habitat would be degraded by brush control and hence, these species would not benefit by the small increase in riparian vegetation.

The only range improvement proposed for the Existing Stocking Level alternative is seeding maintenance. The present distribution and numbers of these species are expected to remain the same. While populations will fluctuate in response to natural stimuli, no impacts would occur.

No range improvements are proposed for the Reduced Livestock Use alternative. This would be beneficial to all species. The prey base would become more stable as habitat conditions improve. Construction of wildlife projects including 11 bird guzzlers and two potholes would benefit all wildlife species.

Range improvements are not proposed for the No Livestock Grazing alternative. This would be beneficial to all species. Since the existing habitat would not be modified, the prey base would stabilize as habitat conditions improve. Construction of 11 bird guzzlers and two potholes would benefit all wildlife species.

RECREATION

Recreation use within the EIS area will increase due to population growth regardless of the alternative implemented. Grazing alternatives would have minimal impacts on recreation use. The alternatives would affect the degree of increase that would occur in the hunting and stream fishing activities. To a lesser extent, the alternatives would affect off-road vehicle use. The following analysis is restricted to these activities as no other recreation activities would be significantly affected.

Table 4-16 summarizes the projected recreation use within the hunting and fishing activities for the Proposed Action and alternatives. Two levels of hunter days for mule deer are listed in the table. One represents the number of mule deer hunter days on public land in the EIS area. The second level represents the hunter days reflective of deer herd dependency on public land and disregards land ownership where the hunter days actually occur.

TABLE 4-16
PROJECTED VISITOR DAYS (1995) FOR
FISHING AND HUNTING

Recreation Activity	1979 Visitor[2] Days	Alternative A Proposed Action	Alternative B Increased Livestock Use	Alternative C Existing[3] Stocking Level	Alternative D Reduced Livestock Use	Alternative E No Livestock Grazing
Fishing[4]	3,912	4,720	4,248	4,720	4,956	5,192
Hunting -						
Mule Deer	135	206	135	206	227	216
Mule Deer	2,415	3,060	2,415	3,060	3,366	3,153
Upland Game	5,206	11,572	9,468	10,520	12,098	11,046

1 One hunting or fishing trip, be it one hour or twelve hours in length, is equal to one visitor day (Idaho Department of Fish and Game).
2 Visitor use projections taken from Planning Area Analysis for the Twin Falls Planning Unit.
3 Alternative C is a continuation of the current trend. Projections for this alternative taken from Planning Area Analysis for the Twin Falls Planning Unit.
4 Visitor days for fishing are projections for stream fishing only.

VEGETATIVE ALLOCATION. Under the Proposed Action, forage would be provided to allow the increase in mule deer as projected by the Idaho Department of Fish and Game. This increase would be reflected in an increase in hunter days. The proposed action includes long-term livestock increases. These larger livestock numbers would result in heavier utilization of riparian areas and more trampling of upland game nests. Opportunities for hunting and fishing would be reduced as a result of these impacts on wildlife under this alternative.

The proposed allocations under the Increased Livestock Use alternative would not allow for any increase in the mule deer population. Hunter days would remain at the current level. This alternative would affect upland game hunting through increased trampling of nests. The unfenced riparian areas would be severely damaged resulting in the loss of nesting habitat and reduction of stream fishing opportunities.

The Existing Stocking Level alternative would not affect recreation, and current trends would continue.

Hunter days for mule deer would surpass current trend projections under the Reduced Livestock Use alternative. Upland game hunting would benefit from reduced harassment of game birds and reduced trampling of nests.

The No Livestock Grazing alternative would result in an increase in mule deer hunting in the short-term. Mule deer numbers and hunter days would decline in the long-term as winter range browse matured and stagnated. As shown in Table 4-16, the hunter days in 1995 would be slightly higher than those under the Proposed Action and Existing Stocking Level alternatives. However, the trends for these alternatives would be upward in 1995 while the No Livestock Grazing alternative would be in a downward trend. Upland game hunting

and stream fishing would both show improvement under the No Livestock Grazing alternative, primarily due to improved riparian habitat and water quality.

GRAZING SYSTEMS. Impacts on recreation that are due strictly to different variations in grazing systems are minimal. The affects that grazing systems would have on hunting and fishing will be directly related to impacts on mule deer, upland game, and fish populations as stated in the wildlife section.

RANGE IMPROVEMENTS. The 15 cattleguards included in the Proposed Action would help improve the physical access to public land in the EIS area. This improved access would benefit hunting and off-road vehicle (ORV) activities. The fence construction in the Proposed Action would have a limited adverse effect on ORV recreation. Land treatments, given adequate leave areas, would not affect hunting opportunities.

The impacts of the fence and cattleguard construction in the Increased Livestock Use alternative would be the same as those impacts under the Proposed Action. Range treatments in this alternative would have a more serious effect than the treatments in the Proposed Action. Without leave areas, the treatments under this alternative would severely degrade the wildlife habitat within the treatment areas. This impact would result in an adverse reduction in the big game and upland game hunting opportunities.

The Existing Stocking Level alternative would not affect recreation trends.

The fence construction in the Reduced Livestock Use alternative would have an adverse effect on ORV recreation. Wildlife developments, particularly fencing of riparian habitat, would enhance wildlife populations, causing some improvement in the upland game and big game hunting opportunities.

Under the No Livestock Grazing alternative some existing roads would deteriorate due to reduced rancher use. Physical access to public lands would improve under this alternative with the removal of many fences and gates presently needed to control livestock use.

VISUAL RESOURCES

Most land to be affected by the proposals is in visual resource management (VRM) Classes III and IV. Some impacts would also occur in Class II areas.

Range improvements would cause the major impacts upon visual resources. Minor impacts would result from different forage allocations and grazing systems. Any impact on land or a water form, vegetation, or any introduction of a structure which negatively changes or interrupts visual characteristics of the landscape, or disrupts the harmony of the natural elements, is considered an adverse visual impact.

VEGETATIVE ALLOCATION AND GRAZING SYSTEMS. The various forage allocation and grazing sytem alternatives would have some impacts on the visual resources in the EIS area. These effects, whether good or bad, would be minimal. The impacts due to forage allocation or grazing systems would not be enough to change any of the VRM class designations.

RANGE IMPROVEMENTS. Range treatments included in the Proposed Action would occur primarily in Class III and Class IV areas, though two Class II areas

would be affected. Treatment effects would be lessened by the use of leave areas within treatment areas. The leave areas left to migitage impacts on wildlife and cultural resources are also important for the protection of scenic quality. Proper location and configuration of these leave areas will be the key to minimizing the visual impacts of treatments. With adequate leave areas, land treatments would not lower any VRM class designations. The Class II and Class III areas proposed for treatment would be adversely affected, but would remain within their respective classes.

This alternative would affect 32,954 acres through various methods of seeding maintenance employed to prevent shrubs from invading established seedings. These shrubs would provide visual diversity if left to develop. The adverse effects of seeding maintenance would be minor as the seedings are already established.

Some localized long-term impacts would be caused by the proposed pumping station, fences, and big game and bird guzzlers. These developments would intrude on the natural landscape but would not lower any of the management class designations. Construction would cause only localized short-term impacts affecting 88 acres.

Range developments included in the Increased Livestock Use alternative would have more severe impacts on visual resources than those in the Proposed Action. Land treatments in this alternative would not include leave areas. They would cover 100% of each individual treatment area and would eliminate the visual diversity of the vegetation within those areas. Up to 1,621 acres of Class II and 2,434 acres of Class III could be lowered to Class III and Class IV, respectively. The impacts occurring in Class IV areas would be adverse, but would not be unacceptable under the Class IV management objectives.

This alternative includes 35,627 acres of seeding maintenance which would prevent these areas from becoming more visually appealing through shrub species invasion.

Fences, pumping stations, well houses, and storage tanks would cause some localized long-term adverse impacts, considered minor unless skylined along ridges. Localized short-term impacts affecting 76.5 acres would be caused by the construction of these developments.

The Existing Stocking Level alternative would create no new visual impacts on the EIS area's visual resource. However, the 32,954 acre seeding maintenance would prevent the visual quality of established seedings from improving.

The Reduced Livestock Use alternative proposes fencing 43 percent of the riparian vegetation in the EIS area. By removing livestock from these areas, condition would improve, thus providing additional diversity in the visual quality of the region. These fences, though, would be adverse intrusions if not properly designed (many are proposed on or near canyon rims). Some localized long-term adverse impacts would be caused by the wildlife guzzlers. Localized short-term impacts caused by construction of developments would affect 42 acres. The overall effect of these range developments would be to improve the visual quality of the EIS area, however, current VRM class designations would not be changed.

The No Livestock Grazing alternative does not include any new visual impacts. This alternative would allow for the removal of some range developments now on public land in the EIS area.

CULTURAL RESOURCES

Impacts to cultural resource sites consist of any change from the original condition. Changes in the physical structure result in loss of information contained in the sites. Since cultural resources are finite and nonrenewable, such alterations are both permanent and irreversible.

Livestock grazing and associated trampling affect cultural resources directly, through soil disturbance, artifact modification (breakage, displacement in location, etc.), and indirectly, by contributing to natural erosional processes. Open sites (base camps, hunting camps, tool manufacturing sites) and isolated artifacts are categories of cultural resources most susceptible to impacts from livestock.

Soil disturbance includes soil compaction, which results in (1) the vertical displacement and modification of buried artifacts and features associated with cultural resource sites and (2) the surface modification and horizontal displacement of surface artifacts and features.

Impacts to cultural resource sites from vandalism or unauthorized removal of surface artifacts are ongoing and would not be expected to either increase or decrease as a result of implementing the proposed action or alternatives, with the possible exception of the no grazing alternative.

The degree of impact to cultural resource sites cannot be readily quantified. However, it would depend on two factors: (1) the physical attributes and location of the sites, and (2) the kind and extent of disturbance.

VEGETATIVE ALLOCATION. Under the Proposed Action, increased impacts from livestock trampling would be expected to occur at 126 of the 138 recorded cultural resource sites in the planning unit. These sites are located either in allotments with a proposed stocking increase, or in a stock driveway. Allotments which contain sites and are scheduled for stocking increases, show an average 34 percent rise in AUMs. Ten sites are located in unallotmented areas, and impacts would be expected to continue at present rates. Two sites are located in an allotment scheduled for a 9 percent decrease in AUMs, and would be expected to show a slight decrease in trampling impacts.

Reduced impacts to currently unidentified cultural resources, especially from livestock trampling, would be expected in those allotments where the proposed stocking rate is to be lowered. However, the nine allotments proposed for stock decreases contain only 1.5 percent of the total allotted acreage in the planning unit. In allotments where the proposed stocking rate reflects an increase, disturbances to unidentified cultural resources would be expected to increase accordingly. These allotments contain 94.5 percent of the total allotted acreage and show an average 34 percent increase in AUMs. Four percent of the allotted acreage is included in allotments with no proposed change in stocking levels. Hence, no change in the rate of trampling impacts has been projected.

Impacts to cultural resource sites would be somewhat more severe under the Increased Livestock Use alternative than under the Proposed Action. Increased impacts would be expected at 130 of the 138 recorded sites due to proposed stocking increases and resulting trampling and erosion increases. Allotments which contain sites show an 81 percent increase in the number of AUMs. Eight sites are located in allotments without increases, or in unallotted areas.

Impacts to currently unidentified sites would decrease in allotments where the stocking rate is to be lowered (.2 percent of the allotted acreage). One percent of the allotted acreage would show no change in AUMs, and hence, no

change in trampling impacts. The remaining 98.8 percent of the allotted acreage shows a 68 percent AUM increase.

Under the Existing Stocking Level alternative, the present, slightly downward trend in the condition of cultural resources would continue because alterations to cultural resource sites are cumulative, permanent, and irreversible. Artifact damage and displacement, due to cattle trampling and erosional processes would be expected to continue at present rates. Some increase in trampling and erosional impacts would be expected in areas of heavy livestock concentrations, particularly near unprotected springs and riparian areas.

With Reduced Livestock Use, impacts resulting from trampling and subsequent erosion would continue, but at a lower level than under the Proposed Action. Reduced allocations in many allotments would improve vegetative cover, reduce erosion, and thus tend to stabilize cultural resource sites. Of the 138 known sites, 130 are located in allotments scheduled for AUM reductions, or in unallotted areas which would receive less use. The reductions amount to a 37 percent decrease in AUMs. The remaining eight sites are in areas which would continue with the present stocking levels.

Trampling related impacts to currently unidentifed sites would decrease over most of the planning unit. Seventy-five of the 78 allotments, representing 98.8 percent of the allotted acreage, would show AUM decreases averaging 36 percent. The remaining 1.2 percent of land is located in allotments where the AUM count would not change.

The No Livestock Grazing alternative would eliminate damage to cultural resource sites from livestock trampling and subsequent erosional activities. But, other uses of the public lands might increase, resulting in additional, though less severe, impacts on cultural resources.

These additional adverse impacts would result primarily from increased recreational use. Improved access and improved hunting and fishing quality might serve to attract larger numbers of visitors to the public lands in the EIS area. Consequent damage to cultural resource sites could result from unauthorized collection of artifacts, increased ORV traffic, and general vandalism.

Additional negative impacts on cultural sites could result if cattle were trailed across public lands to reach National Forest, State or private lands. The possible extent of these impacts cannot be determined until such stock driveways are identified.

GRAZING SYSTEMS. Implementation of the proposed grazing systems would, in some cases, increase livestock distribution within given pastures, thus increasing the likelihood of adverse impacts to cultural resources. The number of sites damaged would show a slight increase over the present situation. Where livestock distribution is decreased from present levels in given pastures, a resulting decrease in adverse impacts would be anticipated. Though primarily resulting from livestock trampling , the nature of impacts caused by the various grazing system alternatives is little understood. Therefore, it will not be further discussed.

RANGE IMPROVEMENTS. Range improvement projects in the Proposed Action, particularly water developments, would cause a slight increase in the number of sites damaged by trampling and erosion. The damage would result from livestock concentrations near project developments, but outside the area examined in the

intensive, site-specific cultural resource inventory that precedes project development. Slight to moderate damage would also occur to currently undiscovered cultural resource sites during project implementation.

Beneficial impacts would also be expected to result from range improvements. The intensive cultural resource inventory conducted prior to project development would reveal the existence of currently undiscovered sites, thereby increasing both the cultural data base and the amount of potentially discoverable information. Furthermore, guidelines and requirements for range improvement projects would lead to beneficial effects to cultural resources by stabilizing subsurface cultural deposits through increased ground cover and reduced erosion, and by such actions as fencing spring heads to include cultural resource sites, thus reducing the probability of livestock trampling.

No cultural resource sites currently listed on the National Register of Historic Places would be adversely affected by the Proposed Action, but presently undiscovered cultural resource sites of National Register quality could be affected by proposal implementation.

Impacts from range improvement projects would be somewhat more severe with the Increased Livestock Use alternative. Approximately 60 percent more ground disturbance is proposed with this alternative. Impacts would be especially likely in areas proposed for land treatments, as these cause significant surface disturbance and are thus instrumental in displacing artifacts and compromising the stratigraphic integrity of cultural resource sites.

Some beneficial impacts would be expected in the short term. These would consist of an expected increase in cultural resource base-line data generated by intensive on-ground inventories in the proposed treatment areas. These inventories would allow for the recordation of presently unknown sites and would provide an opportunity to avoid sites and otherwise mitigate expected impacts from range improvements.

Because no new range improvement projects would be undertaken, a substantial increase in base-line data would not occur under the Existing Stocking Level. A slight increase in base-line data would be expected to result from maintenance projects involving new ground disturbances, i.e., maintenance burn fire lines. Also, any protective benefits potentially available through range developments, such as fenced spring exclosures, would not be realized.

There would be few new developments under the Reduced Livestock Use alternative, and therefore, few additional adverse impacts from construction activities. Protection of cultural resource sites would not increase around springs or in other areas where exclosures might otherwise be constructed. Similarly a significant increase in base-line data would not be expected, as few cultural resource clearances would be required and currently unidentified sites would likely remain so.

Since there would be neither developments nor maintenance under this alternative, there would be no adverse impacts from construction activities resulting from the No Livestock Grazing alternative. Also, there would be no protection afforded by exclosures, nor any increase in base-line date.

ECONOMICS

RANCHER INCOME. Impacts to rancher income have been estimated with ranch budgeting and linear programming techniques. These methods are described in Appendix H.

In the short term there would be an annual income gain of $22,000 as a result of the Proposed Action. Changes in AUM levels would vary by size group. Group 6 would experience a one percent decrease from six-year average use while groups 2 and 4 would receive 16 percent increases and group 5 would receive a 19 percent increase (see Table 4-17). Overall, there would be 34 permittees receiving AUM increases, 14 receiving decreases, and 14 experiencing no change. Among the 14 permittees receiving decreases the average reduction is 15 percent and 174 AUMs. The percentage reductions vary from 68 percent to 8 percent. AUM reductions vary from 1,018 to 1.

In the long term, there would be an annual income gain of $158,000. AUM changes in the long term vary from increases of 77 percent in group 1 to 26 percent in group 6.

In the short term, an annual income gain of $69,000 would occur due to the Increased Livestock Use alternative. The average AUM increase (as measured against six-year average use) would be 18 percent. Group 4 would have the highest average increase (59 percent), while group 3 would have the lowest (12 percent). Fifty-two permittees would receive increases, 9 would receive decreases, and one would experiences no change. Among the 9 permittees receiving decreases the average reduction would be 7 percent and 53 AUMs. The percentage of reductions varies from 68 percent to 2 percent. AUM reductions vary from 1 to 276.

In the long term, there would be an annual income gain of $321,000. AUM changes would vary from an increase of 203 percent in Group 1 to an increase of 59 percent in Group 6.

Rancher incomes would not change as a result of the Existing Stocking Level alternative.

In the short term, there would be an annual income loss of $187,000 under the Reduced Livestock Use alternative. The average AUM decrease would be 36 percent. Group 4 would have the highest decrease at 53 percent and Group 2, the lowest at 30 percent. Under this alternative there would be no increases, 61 permittees would receive decreases, and 1 permittee would experience no change. These reductions would continue into the long term.

In the short term there would be an annual income loss of $540,000 as a result of the No Livestock Grazing alternative. All permittees would receive 100 percent reductions. These reductions would continue in the long term.

RANGE IMPROVEMENTS. Approximately $633,000 would be spent on range improvements and land treatments under the Proposed Action. It is estimated that $111,000 would be spent in Twin Falls County. Maintenance of these improvements would cost $26,000 annually, with roughly $16,000 being spent in Twin Falls County.

With Increased Livestock Use approximately $1.2 million would be spent on range improvements and land treatments. Roughly $196,000 of that would be spent in Twin Falls County. Annual maintenance costs would be approximatley $44,000, with $27,000 being spent in Twin Falls County.

Roughly $164,000 would be spent on land treatments (maintenance on existing treatments) under the Existing Stocking Level. Approximatley $26,000 would be spent in Twin Falls County. Annual maintenance cost would be $8,000 with $5,000 being spent in Twin Falls County.

TABLE 4-17
PROJECTED CHANGES IN RANCHER INCOME BY GROUP

SHORT TERM

DESCRIPTION	GROUP[1] 1	2	3	4	5	6	TOTAL
Number of Permittees	6	17	9	12	11	7	62
Active Preference	801	6,563	8,457	3,361	8,418	17,792	45,392
Average Use	847	6,024	11,743	3,266	7,528	25,064	54,472
Alternative A							
Proposed Use	848	6,998	12,021	3,780	8,974	24,795	57,416
Percent Change from Active	+6	+6	+42	+13	+7	+39	+27
Percent Change from Average	0	+16	+2	+16	+19	-1	+5
Annual Income Change	$ 0	+$ 3,409	+$ 605	+$ 2,598	+$ 16,971	-$ 1,798	+$ 21,785
Alternative B							
Proposed Use	1,032	7,764	13,156	5,207	9,405	28,276	64,840
Percent Change from Active	+29	+18	+56	+55	+12	+59	+43
Percent Change from Average	+22	+29	+12	+59	+25	+13	+19
Annual Income Change	+$ 1,258	+$ 6,179	+$ 3,744	+$ 9,582	+$ 22,330	+$ 25,942	+$ 69,035
Alternative C							
Proposed Use	847	6,024	11,743	3,266	7,528	25,064	54,472
Percent Change from Active	+6	-8	+39	-3	-11	+41	+20
Percent Change from Average	0	0	0	0	0	0	0
Annual Income Change	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Alternative D							
Proposed Use	488	4,236	7,593	1,524	4,769	16,251	34,861
Percent Change from Active	-39	-35	-10	-55	-43	-9	-23
Percent Change from Average	-42	-30	-35	-53	-37	-35	-36
Annual Income Change	-$ 4,950	-$ 8,840	-$ 22,329	-$ 15,328	-$ 56,705	-$ 77,378	-$185,530
Alternative E							
Proposed Use	0	0	0	0	0	0	0
Percent Change from Active	-100	-100	-100	-100	-100	-100	-100
Percent Change from Average	-100	-100	-100	-100	-100	-100	-100
Annual Income Change	-$ 12,402	-$ 41,242	-$ 63,855	-$ 29,184	-$171,952	-$221,508	-$540,143

LONG TERM

DESCRIPTION	GROUP[1] 1	2	3	4	5	6	TOTAL
Number of Permittees	6	17	9	12	11	7	62
Active Preference	801	6,563	8,457	3,361	8,418	17,792	45,392
Average Use	847	6,024	11,743	3,266	7,528	25,064	54,472
Alternative A							
Proposed Use	1,501	8,157	15,859	5,138	11,422	31,473	73,550
Percent Change from Active	+87	+24	+88	+53	+36	+77	+62
Percent Change from Average	+77	+35	+35	+57	+52	+26	+34
Annual Income Change	+$ 31,878	+$ 7,457	+$ 10,920	+$ 9,257	+$ 46,447	+$ 51,882	+$157,841
Alternative B							
Proposed Use	2,540	9,647	18,740	8,431	12,743	40,032	92,133
Percent Change from Active	+217	+47	+122	+151	+51	+125	+103
Percent Change from Average	+200	+60	+60	+158	+69	+60	+69
Annual Income Change	+$ 82,800	+$ 12,784	+$ 18,720	+$ 25,659	+$ 61,631	+$119,728	+$321,322
Alternative C							
Proposed Use	847	6,024	11,743	3,266	7,528	25,064	54,472
Percent Change from Active	+6	-8	+39	-3	-11	+41	+20
Percent Change from Average	0	0	0	0	0	0	0
Annual Income Change	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Alternative D							
Proposed Use	488	4,236	7,593	1,524	4,769	16,251	34,861
Percent Change from Active	-39	-35	-10	-55	-43	-9	-23
Percent Change from Average	-42	-30	-35	-53	-37	-35	-36
Annual Income Change	-$ 4,950	-$ 8,840	-$ 22,329	-$ 15,328	-$ 56,705	-$ 77,378	-$185,530
Alternative E							
Proposed Use	0	0	0	0	0	0	0
Percent Change from Active	-100	-100	-100	-100	-100	-100	-100
Percent Change from Average	-100	-100	-100	-100	-100	-100	-100
Annual Income Change	-$ 12,402	-$ 41,242	-$ 63,855	-$ 29,184	-$171,952	-$221,508	-$540,143

[1] 1 = 0-99 head - Spring, Summer, Fall Use
2 = 100-299 head - Spring, Summer, Fall Use
3 = 300+ head - Spring, Summer, Fall Use
4 = All Sizes - Spring Use
5 = All Sizes - Spring and Fall Use
6 = All Sizes - Year Round Use

Approximately $111,000 would be spent on range improvements under Reduced Livestock Use with $23,000 being spent in Twin Falls County. Annual maintenance costs would be $3,000 with $2,000 being spent in Twin Falls County.

No Livestock Grazing includes neither range improvements nor land treatments.

RECREATION-RELATED INCOME. Gradual changes in recreation-related income would result from impacts of various alternatives on hunting and fishing activities. The following changes are projected to occur by 1995:

Proposed Action	Increased Use	Existing Stocking Level	Reduced Use	No Livestock Grazing
+$8,000	-$18,000	0	+$17,000	+$8,000

Refer to Appendix H for an explanation of how recreation-related income figures were developed.

SECONDARY INCOME IMPACTS. When income is increased (or decreased) in one sector of the economy, income increases (or decreases) in other sectors as well. This is due to the interdependencies among industries (buying and selling of goods to one another) and is known as the multiplier effect. Secondary income changes are estimated through the use of multipliers. The economic model and multipliers used to estimate this impact is described in Appendix H.

Income changes in the livestock, construction (range improvements), and service (recreation-related) sectors of the economy create secondary impacts to the regional (Twin Falls County) economy. Adjustments in total annual income of the region resulting from changes in secondary income would be as follows:

	Proposed Action	Increased Use	Existing Stocking Level	Reduced Use	No Livestock Grazing
Short Term	+$11,000	+$24,000	+$1,900	-$28,000	-$87,000
Long Term	+$31,000	+$61,000	+$2,000	-$29,000	-$87,000

The resulting change in regional net present worth (explained in Appendix H) would be:

	Proposed Action	Increased Use	Existing Stocking Level	Reduced Use	No Livestock Grazing
Change in Net Present Worth	+$1.5 million	+$2.8 million	+$89,000	-$2.1 million	-$6.4 million

EMPLOYMENT. Income changes in the livestock, construction, and services can lead to changes in employment levels in these and other sectors of the economy (through the multiplier effect). Short- and long-term changes in employment resulting from the various alternatives are as follows:

	Proposed Action	Increased Use	Existing Stocking Level	Reduced Use	No Livestock Grazing
Short-Term	+3	+7	+1	-11	-35
Long-Term	+11	+22	0	-11	-35

The economy model used to estimate these changes is explained in Appendix H.

RANCH CONSOLIDATION AND CONVERSION. No impacts related to ranch consolidation or conversion would occur under the Proposed Action, Increased Livestock Use, or Existing Stocking Level alternatives. Permittee operations would be expected to remain as they currently exist.

Under the Reduced Livestock Use alternative some permittees may find it difficult to remain in business or to resist offers to sell their ranch for non-ranching enterprises (subdivision, ranchettes, etc.). However, all ranches should be able to meet current (cash) expenses. An even more severe impact would result from the No Livestock Grazing alternative with permittees in Group 5 unable to meet cash expenses.

CAPITAL POSITION. The Proposed Action would improve the capital position of those ranchers receiveing increases in excess of their active preference. There would be 35 permittees receiving increases in active preference, 21 receiving no change, and 6 receiving decreases. In the long term all but one permittee would be receiving either increases in active preference, or no change (7 no change, 54 increases).

As in the Proposed Action, the Increased Livestock Use alternative would improve the capital position of most permittees. There would be 39 permittees receiving increases in active preference, 16 receiving no change, and 7 receiving decreases. In the long term this would change to 56 increases, 4 no changes, and 2 decreases.

No impacts on the capital position of permittees would result from the Existing Stocking Level alternative.

Because reduction in permits or permit values are measured against the total grazing preference, the impact of the loss of capital assets in the form of federal AUMs under the Reduced Livestock Use alternative would be larger than the direct loss of income due to reductions measured against the six-year average use. Neilson and Workman (1971) address the point: "Grazing permits held today represent an asset which a rancher can borrow against or sell in the market. If this asset becomes non-saleable, the rancher has lost the opportunity of marketing a valuable asset...If the permit is reduced, the value of the permit is also reduced, and the rancher has lost a capital asset which previously could have been sold, or at the least, been used as collateral for securing loans."

In addition, any impacts in this areas would occur when a rancher sells his ranch, his grazing permit, or uses the federal AUMs for collateral when obtaining a loan. The BLM does not officially recognize that grazing permits have attained a capitalized value and are bought and sold on the market place.

The No Livestock Grazing alternative would have the same type of impacts as Reduced LIvestock Use only more severe.

SOCIAL CONDITIONS

The Proposed Action, Increased Livestock Use, and Existing Stocking Level, depending on the alternative chosen, would cause the majority of those individuals deriving their livelihood from ranch related activities to

experience, in varying degrees, a strengthening of their feelings of social well being. Because of no change to their current stocking rates or recommended AUM increases, a few permittees, however, would experience a reduction in their sense of social well being, due to a greater emphasis on multiple use and proposed reductions in stocking rates. Changes in stocking rates would cause economic losses for some, both in ranch income and the ability to borrow money under these alternatives. However, the majority of the ranchers would, in fact, experience an increase in income. None of the three alternatives would measurably affect the social systems of the Twin Falls area.

Reduced Livestock Use would cause the majority of those deriving their livelihood from ranching to experience a reduction in their sense of well being because of greater emphasis on multiple use and the proposed reduction in stocking rates.

Multiple use of public lands threatens ranchers feelings of independence and their traditional use of public lands. Changes in management required to implement AMPs further threatens independent as well as traditional methods of operations. Changes in stocking rates could cause an economic loss both in income and the ability to borrow money. Some permittees may have to consider outside employment or ranch consolidation to offset short term losses.

Under No Livestock Grazing, the removal of grazing from public lands in the study area would cause many ranchers to seek outside employment to subsidize ranch income, consider ranch consolidation, or sale of the ranch in order to survive. This would significantly reduce their sense of social well being. Further, if many ranches were in fact sold, local community social groups and businesses would experience loss of membership or clientele that could threaten their future. In some cases, sales and relocation would mean the loss of the ranching lifestyle for some, which was identified as very important to protect.

LONG-TERM PRODUCTIVITY

The foregoing analyses have identified projected impacts, alternative by alternative, resource by resource. The accompanying table (Table 4-18) brings together the five alternatives to itemize irreversible and irretrievable commitments of resoruces and to summarize, in comparative form, "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (CEQ Rules and Regulations 1502.16).

For the purposes of this analysis, "irreversible" describes any action, impact or use which is not capable of being reversed. "Irretrievable" means irrecoverable; once used, not readily replaceable. As used in Table 4-18, the "short term" is defined as the time frame needed to achieve the objectives of each alternative. Short-term use is that use the resource is committed to during the short term. The "long term" refers to that time in which impacts from the alternative may still be measured. Long-term productivity is analyzed in terms of natural ecosystem productivity, human productivity (production of red meat, economic benefits, social benefits) and overall productivity.

TABLE 4-18
Relationship Between Short-Term Uses of Man's Environment
and the Maintenance and Enhancement of
Long-Term Productivity and Irreversible or Irretrievable Commitments of Resources

ALTERNATIVE	SHORT-TERM USE	LONG-TERM PRODUCTIVITY	IRREVERSIBLE	IRRETRIEVABLE
Proposed Action (Alt. A)	Optimize multiple use of resources.	Increase ecological productivity. Increase human productivity. Increase overall productivity.	None.	Potential increased disturbance of 91 percent of recorded cultural sites. Loss of forage and water consumed by livestock/wildlife (77,955 AUMs--long-term). Loss of monies ($633,292), fuel, material used to implement this plan.
Increased Livestock Use (Alt. B)	Maximize livestock and social/economic condition.	Decrease ecological productivity. Increase human productivity. Increase overall productivity.	None.	Potential increased disturbance of 94 percent of recorded cultural sites. Loss of fertile topsoil. Potential loss of habitat of two sensitive and one threatened (proposed) plant. Loss of forage and water consumed by livestock/wildlife (95,427 AUMs--long-term). Loss of monies ($1,253,721), fuel, material used to implement this plan.
Existing Stocking Level (Alt. C)	Maintain status quo.	Decrease ecological productivity. Increase human productivity. Increase overall productivity.	None.	Potential downward trend in condition would continue on 95 percent of recorded cultural sites. Loss of forage and water consumed by livestock/wildlife (58,160 AUMs--long-term). Loss of red meat and monies from not harvesting 10,005 AUMs resulting from seeding maintenance which would not be allocated. Loss of monies ($163,925), fuel, material required to implement this plan.
Reduced Livestock Use (Alt. D)	Remove approximately 36 percent of present livestock use. Maximize wildlife values.	Increase ecological productivity. Decrease human productivity. Increase overall productivity.	None.	Potential downward trend would continue on 95 percent of recorded cultural sites (89 percent at a rate slower than present). Loss of forage and water consumed by livestock/wildlife (39,188 AUMs--long-term). Loss of monies ($108,625), fuel, material required to implement this plan. Proportionate loss of red meat and monies from not harvesting the renewable forage resource (38,767 AUMs).
No Livestock Grazing (Alt. E)	Allow natural ecological principles to prevail following the removal of livestock.	Increase ecological productivity. Decrease human productivity. Decrease overall productivity.	None.	Loss of red meat that could have been harvested from the renewable forage resources (73,550 AUMs) along with associated economic losses.

CHAPTER 5

CONSULTATION AND COORDINATION

This chapter lists agencies, organizations, and individuals to whom copies of the draft EIS will be sent. Comments are being requested from all those on the list, many of whom have already contributed to the development of the draft. Public involvement, as is summarized in Chapter 1, is an integral part of BLM's land-use planning. For a detailed account of the BLM planning process and its relationship to non-BLM planning in the study area, see Appendix I.

The following list includes governmental agencies with jurisdiction and expertise, as well as organizations and individuals potentially affected by land-use decisions in the Twin Falls area.

Elected Officials, Federal

Senator James McClure
Senator Steven Symms
Congressman George Hansen

Federal Agencies

Department of Agriculture
- Animal & Plant Health Inspector
- Economics, Statistics, and Cooperative Service
- Soil Conservation Service
- U. S. Forest Service

Department of Interior
- Bureau of Indian Affairs
- Bureau of Land Management--Boise Field Solicitor's Office
- Fish & Wildlife Service
- Geological Survey
- National Park Service

Environmental Protection Agency
National Advisory Council on Historic Preservation
Government Printing Office

Elected Officials, State

Honorable John V. Evans
Governor, State of Idaho
Deputy Atty. General, State of Idaho
Senator John M. Barker
Laird Noh
Representative Lawrence Knigge
Noy Brackett
Ralph Olmstead
T. W. Stiver

State Agencies

Bureau of Mines and Geology
Dept. of Fish & Game
Dept. of Lands
Dept. of Parks & Recreation
Dept. of Water Resources
Dept. of Health & Welfare, Division of Environmental Services
Idaho Bureau of Community Affairs
Idaho Public Utilities Commission
Idaho School Board Association
Idaho State Clearinghouse
State Historic Preservation Officer
University of Idaho Extension Service
  Extension Range Economist
  Extension Range Specialist
University of Idaho
  Department of Range Sciences
  Department of Wildflife Sciences

Local Government

Mayor, City of Buhl
Castleford
Filer
Hansen
Hollister
Kimberly
Murtaugh
Rogerson
Twin Falls
Twin Falls City Planning & Zoning
Twin Falls County Agent
Twin Falls County Commissioners
Twin Falls County Planning and Zoning Commission

Organizations

American Fisheries Society
American Mining Congress
Balanced Rock Soil Conservation District
Committee for Idaho's High Desert
Fish Breeders of Idaho, Inc.
German Short-hair Pointer Club of Magic Valley
Idaho Cattlemen's Association
Idaho Chapter of The Wildlife Society
Idaho Conservation Leagues
Idaho Environmental Council
Idaho Mining Association
Idaho Motorcycle Club
Idaho State Historical Society
Idaho State Snowmobile Association
Idaho Trail Machine Association
Idaho Wildlife Federation
Idaho Wool Growers Association
Independent Petroleum Asociation
League of Women Voters
Magic Valley Gem Club
Magic Valley Gun Club
National Audubon Society
National Outdoor Coalition
National Wildlife Federation
Natural Resources Defense Council
NW Federation of Mining Societies
OT YO KWA - Bowman
Public Lands Council
Ralston and Associates
Region IV Development Association
Sierra Club
Snake River Alliance
Snake River Council Boy Scouts of America
Southeast Idaho Rod & Gun Club
The Wilderness Study
Twin Falls Chamber of Commerce
Twin Falls Soil Conservation District
Wilderness Society
Wildlife Management Institute
Wildlife Society

Individuals

Joe Barinaga
Ralph Baughman
Clinton Bean
Virginia Becher
Joseph E. Black
Dick Bonamarte
Wallace Brown
Lou Bucklin
Jim Bulkley
Don Campbell
Gale Chambers
Roger and Coral Clark
Lee Cooper
Roy and Doris Couch
David Crockett
Larry Drexler
Lud Drexler
Jerry Duffy
Edna L. Egner
H. Paul Friesema
Ernie Gadsby
Kenneth Goldsmith
Don Graybeal
Larry Hancock

Jarvis Hazen
Les L. Hazen
Mike and Judy Heath
Clarence Hedrick
John Henstock
Steven Herrett
George Holmes
Karl Holte
Harold Hoshaw
Linda Hopp
William Hranac
Mr. A. H. Huber
Elmo D. Ison
Robert Johnson
Barbara Justice
Alex Kunkel
Sharon LaMiller
Bill Lemmons
Bill Lewis
Dick Loper
J. C. Marley
Abe and Shirley McCoy
Bill Meiners
Bob Mohl
Mark Moorman
Stu Murrell
Carl Nellis
Dr. Julian O. Nickolson
Dr. P. L. Packard
Elmer Parrott
B. L. Patrick
Jim Patrick
Richard C. Peckham
Emery Peterson
Ron and Donna Peterson
Mr. Robert A. Pettigrove
Kenneth H. Poe
Robert D. Pressnell
Jake F. Prudek
Mel Quale
Art Rathburn
Fred Rose
Ted Sandmeyer
Doyle Satterwhite
Lee D. Satterwhite
Don, Gerald & Jim Scarrow
Roy B. and Melissa Smalley
Dennis Smith
Dr. William E. Southern
Reuel Stayner
Galen A. Stimpson
H. E. Taylor
Charles W. Thompson
Charles Trost
David Tvrdy
Ron Watters
Erich Wegener
Jim Woods
Raymond Zagata
Don Zuck
All grazing permittees in the Twin Falls EIS Area
Burley District Grazing Advisory Board Members
Burley District Advisory Council Members

Other

Auto Phone Corp.
Buhl Herald
Clear Springs Trout Co.
Environmental Science & Engineering, Inc.
Farm Bureau Insurance
Farm Bureau Insurance Co.
Golden Valley Land & Cattle Co.
High County News
Idaho Farmer - Stockmen
Idaho Power
Kimberly School District, Ag. Shop
KMVT Channel 11
Mountain Bell Engineering Dept.
Mountain States Telephone & Telegraph Co.
Production Credit Association
Salmon River Canal Co., Watermaster
The Institute of Ecology, Indianapolis
Twin Falls Canal Co. Watermaster
Twin Falls Times-News
Union Oil Company of California
Utah Power and Light Co.
Will's, Inc.
Winn & Co.

GLOSSARY

ANIMAL UNIT MONTH (AUM). The amount of forage (800 lb. dry weight) required to sustain the equivalent of 1 cow, 1 horse, 5 sheep, 4 deer or 5.3 antelope for one month.

APPARENT TREND. A one-time observation (of a representative area of vegetation type) which considers plant vigor, seedlings, surface litter, and soil movement, and which compares the vegetative composition to the natural potential (climax community) of the area.

CARRYING CAPACITY. The maximum use rate possible without inducing damage to vegetation or related resources. It may vary from year to year on the same areas due to fluctuating forage production. Carrying capacity relates to livestock numbers, wildlife numbers, recreational use, etc.

CRITICAL HABITAT. Habitat where animals of a given species tend to concentrate, where the size and habitat quality of an area can have a major effect on the size of a given population (crucial habitat).

CRITICAL RANGE. An area which, if severely damaged, would have an adverse impact on a significant portion of the species population (crucial range).

DISTANCE ZONE. The area that can be seen from a travel route as foreground-middleground (up to 3-5 miles), background (from foreground-middleground up to 15 miles), and areas which are seldom seen.

EDGE EFFECT. The effect achieved where two habitat types come together. The edge between the two merging types will be more favorable as wildlife habitat than either type considered alone.

GRAZING PREFERENCE. The total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee.

GULLY EROSION. The undermining on downward cutting of large or small ravines on the landscape due to the concentration of running water.

INFILTRATION RATES. The rate at which water enters the surface soil.

INTRUSION. A feature (land and water form, vegetation, or structure) which is generally considered out of context because of excessive contrast and disharmony with the characteristic landscape.

MUSGRAVE EQUATION. An equation used to estimate potential sheet erosion [$E=FR(S/10)^{1.35} \times (L/72.6)^{0.35} \times (P/1.375)^{1.75}$], where E is erosion in tons per acre per year; F, the basic erosion rate of bare soil; R, the total cover (includes litter, plant cover and rock); S, the average slope percentage factor; L, the length of the contributing meander waterway; and P, the maximum two-year frequency, 30 minute-rainfall.

PLOT TREND. A method employing periodic measurements and photographs of vegetation within a selected 3 x 3-foot plot of land to assess range trend on a long-term basis.

RILL EROSION. The removal of soil by running water, creating numerous shallow channels, less than six inches deep.

SCOPING PROCESS. An early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. The process invites the participation of affected Federal, State, and local agencies, any affected Indian tribe, proponents of the action, and all other interested persons.

SENSITIVITY LEVEL. As applied to visual resource management, that degree of concern expressed by the user toward scenic quality and existing or proposed visual change in a particular characteristic landscape.

SOIL PRODUCTIVITY. Capacity of a soil to produce vegetation. The amount produced will vary according to plant species and management practices.

SOIL SURFACE FACTOR (SFF). A numerical expression of surface erosion caused by wind and water as reflected by soil movement, surface litter, erosion pavement, pedestalling, rills, flow patterns, and gullies. Values vary from 0 for no erosion condition to 100 for a severe condition.

SOIL VEGETATION INVENTORY METHOD (SVIM). A means of assessing the vegetation type and condition in a specified area. See Appendix D for a description of the SVIM process and its significance to vegetation allocation.

STEP-POINT TRANSECT. A systematic, terrestrial sampling procedure used in a vegetation field inventory.

STREAM CHANNEL EROSION. The loss of soil in and along a stream channel due to the concentrated movement of water in the stream corridor.

SUITABILITY. The capability of forage-producing land to be grazed on a sustained yield basis without damage to the basic resources of the area or to adjacent areas.

TREATMENTS (Grazing). A scheduled period of grazing or rest during the grazing year. An "early grazing treatment" means grazing prior to seedripe; a "seedripe treatment" means grazing after seedripe; a "yearlong rest treatment" means no grazing for an entire year.

UTILIZATION. The proportion of current year's forage production that was consumed or destroyed by grazing animals, usually expressed as a percentage.

WATERSHED RECOVERY TIME. The time it takes for a specific watershed to return to the state in which it existed prior to the introduction of a disturbance phenomena.

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LIST OF PREPARERS

Name	EIS Responsibility	Education	Experience
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Linda Parsons	Wildlife	B.S. in Biology	5 years BLM, Wildlife Biologist
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Stan Frazier	Economics	B.S. in Agricultural Economics	6 years BLM, Economist
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Margaret Beason	Typist	- - - - - - -	2 years BLM, Clerk-Typist (Word Processor Operator)
Ken Fuller	Vegetation	B.S. in Range and Wildland Science	4 1/2 years BLM, Range Conservationist
Fred Minckler	BLM State Office Review and Coordination	B.S. in Fisheries B.S. in Wildlife	2 years BLM, Environmental Specialist; 2 years BLM, Fisheries Biologist

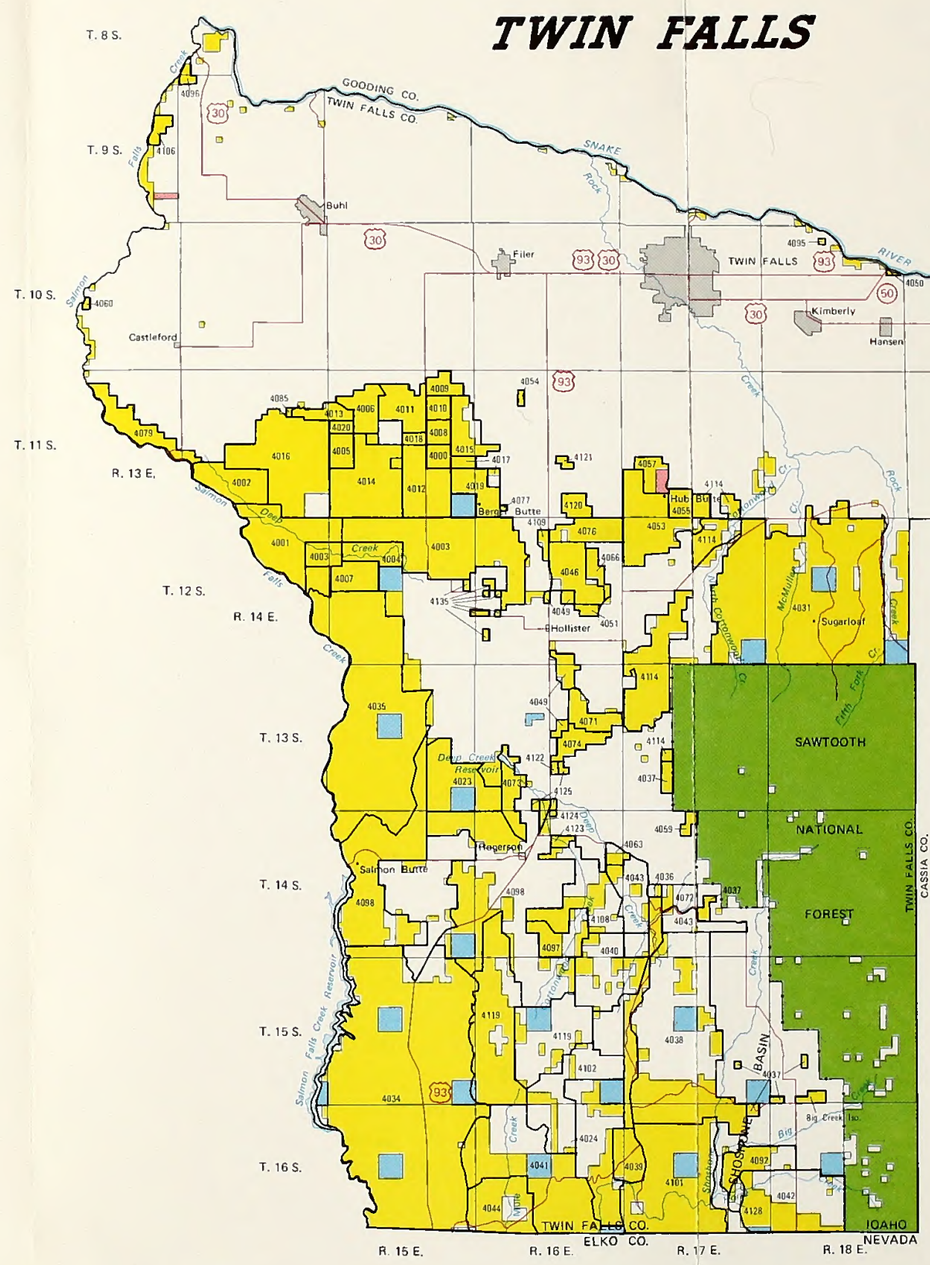
GPO 1982 593-764

ALLOTMENT KEY

ADP NO.	ALLOTMENT NAME
4000	Babcock - Berger
4001	Buhl Group - Berger
4002	Kerr - Berger
4003	Ellis / Tews - Berger
4004	Chadwick - Berger
4005	Koch - Berger
4006	Kaster - Berger
4007	Kunkel - Berger
4008	Lassen - Berger
4009	Lierman - Berger
4010	M. Lierman - Berger
4011	Lierman / Wegener - Berger
4012	Lanting - Berger
4013	Martens - Berger
4014	Noh - Berger
4015	Parrott - Berger
4016	PVGA - Berger
4017	Schritker - Berger
4018	Smith - Berger
4019	Wrigley - Berger
4020	Skeem - Berger
4023	J.E. Baker - Deep Creek
4024	J.E. Baker - Lost Creek
4031	Western Stockgrowers
4034	Point Ranch
4035	Whiskey Creek
4036	Moore - Lost Creek
4037	North Big Creek
4038	Kerr - Lost Creek
4039	Noh - White Rock
4040	Noh - Sections
4041	Mule Creek - PVGA
4042	Horse Creek - PVGA
4043	Frahm - PVGA
4044	South Mule Creek
4046	Griff
4049	Peters
4050	Rock Creek - Coiner
4051	Courtnay

ADP NO.	ALLOTMENT NAME
4053	Hub Butte - WSGA
4054	Salmon Tract Iso. (Danos)
4055	Hub Butte - Davis
4057	Fuller
4059	Greene Private
4060	Salmon Tract - Stewart
4063	Soldier Creek
4066	Barton - Schutte
4071	Jones - Goat Spring
4072	Kinsey - Lost Creek
4073	West Kunkel
4074	Amsterdam - Kunkel
4076	Loughmiller
4077	Salmon Tract Ind.
4079	Lilly Grade
4085	Salmon Tract - McCoy
4092	South Big Creek
4095	Randall Iso.
4096	Lemmon - Ring
4097	Cameron
4098	Schnell - Salmon Tract
4101	Magic Common
4102	Sharp - Lost Creek
4106	Salmon Tract Iso. (Stewart)
4108	Lost Creek - U2
4109	Salmon Tract - U2
4114	Squaw Joe
4114	Squaw Joe Iso.
4119	Ridge
4119	Ridge Iso.
4120	Gravel Pit - Salmon Tract
4121	Section 22 - Salmon Tract
4122	Highway Unit
4123	East Kunkel
4124	Highway - Kunkel
4125	Kunkel Iso.
4128	Hot Creek
4135	Tews Iso.
	Big Creek Iso.

TWIN FALLS

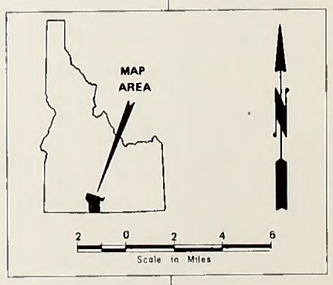


GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981

MAP 2 - 1

LAND STATUS and ALLOTMENT BOUNDARIES



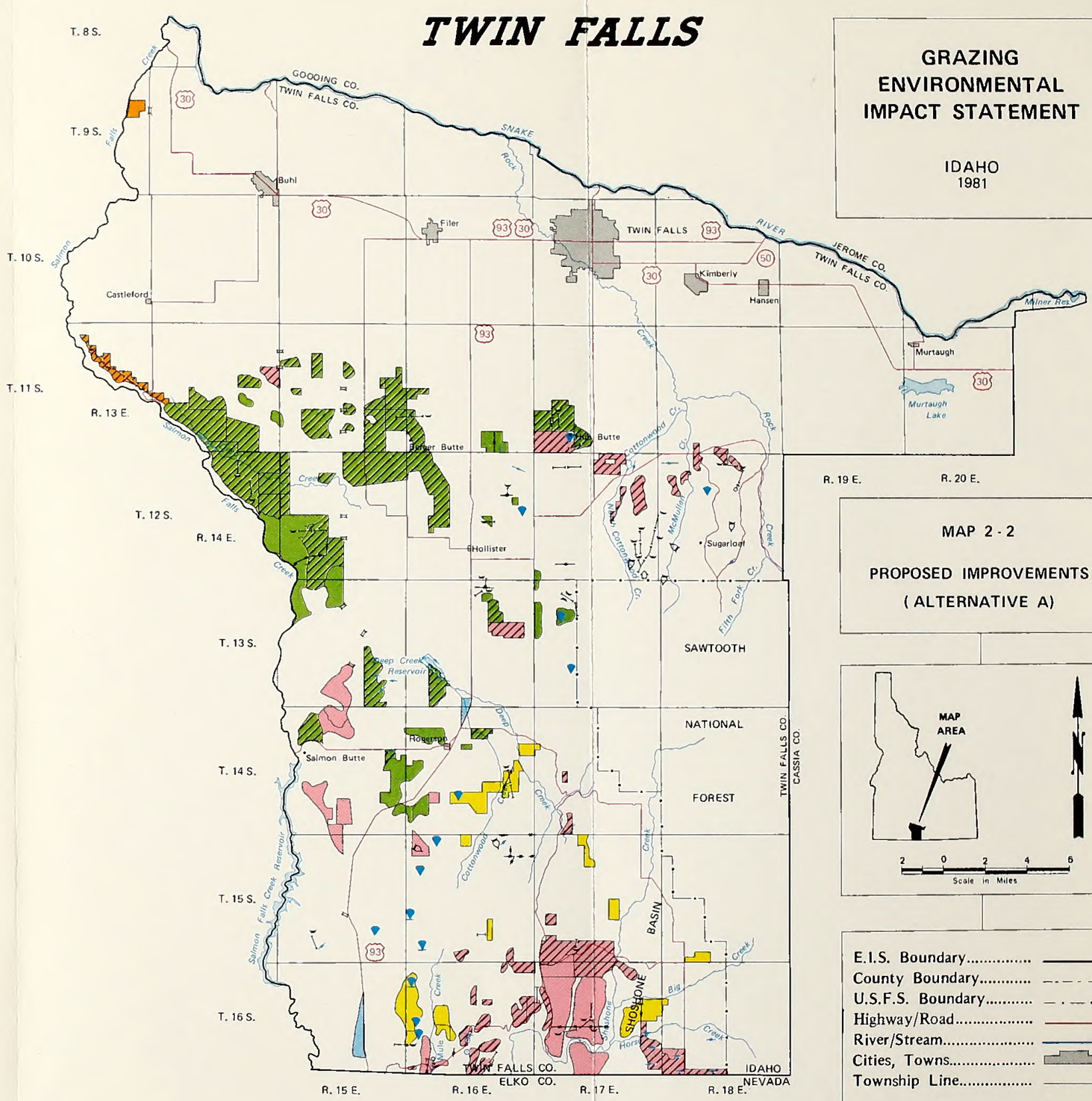
E.I.S. Boundary
County Boundary
U.S.F.S. Boundary
Highway/Road
River/Stream
Cities, Towns
Township Line

PUBLIC
STATE
NATIONAL FOREST
MILITARY WITHDRAWAL
PRIVATE
ALLOTMENT BOUNDARY

TWIN FALLS

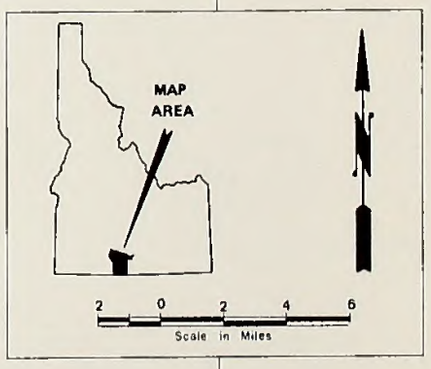
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 2 - 2

PROPOSED IMPROVEMENTS (ALTERNATIVE A)



E.I.S. Boundary
County Boundary
U.S.F.S. Boundary
Highway/Road
River/Stream
Cities, Towns
Township Line

PROPOSED ACTION RANGE IMPROVEMENTS

LAND TREATMENTS*

- SPRAY
- SPRAY and DRILL SEED
- BURN and DRILL SEED
- RAIL, AERIAL SEED
- PLOW and DRILL SEED
- SPRAY MAINTENANCE
- BURN MAINTENANCE
- RAIL MAINTENANCE

RANGE PROJECTS

- WATER TROUGH
- FENCE
- PIPELINE
- SPRING DEVELOPMENT
- RESERVOIR
- PUMPING STATION
- CATTLEGUARD

WILDLIFE PROJECTS

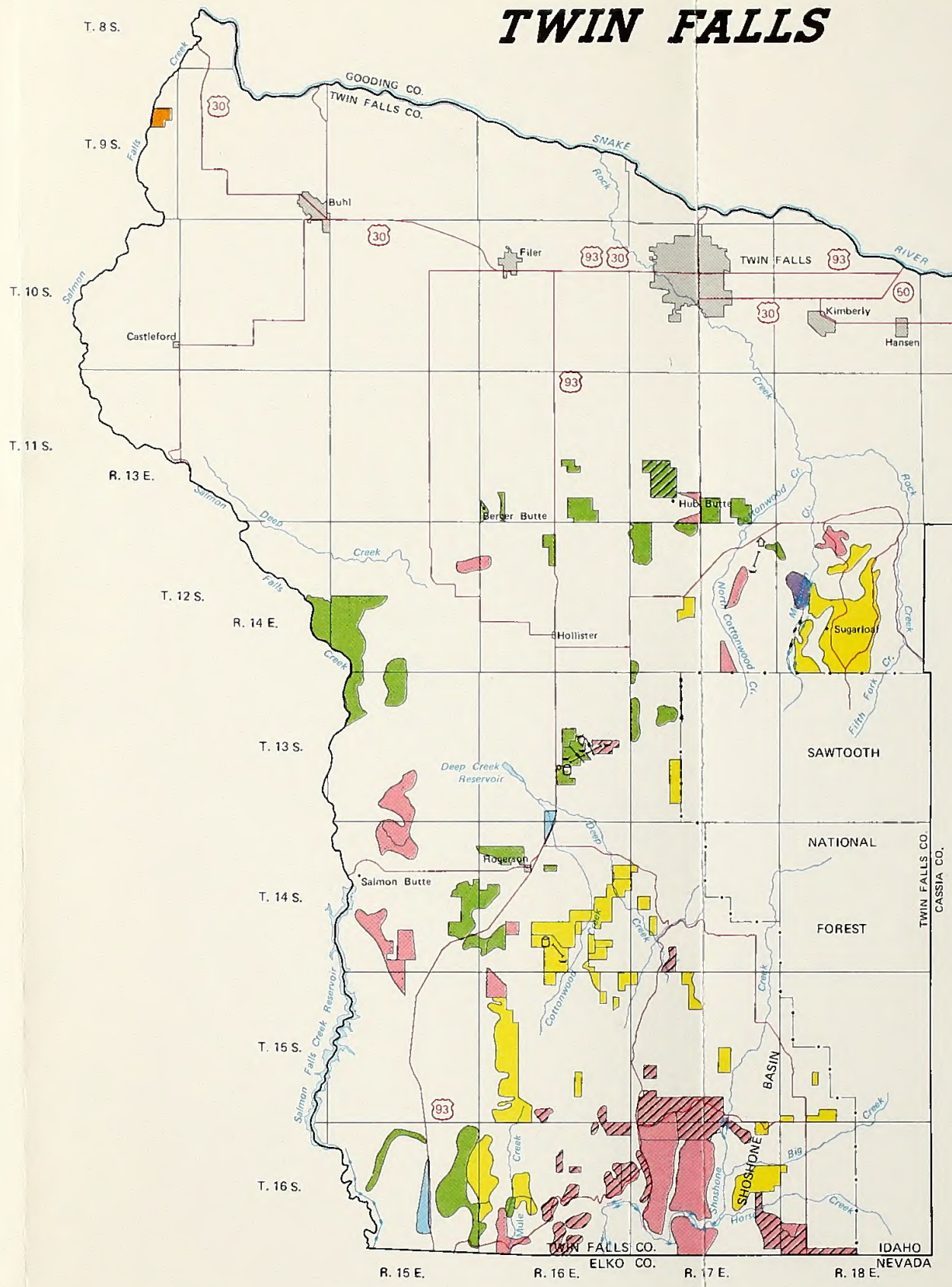
- FENCE
- BIG GAME GUZZLER
- BIRD GUZZLER
- PIPELINE
- POTHOLE

*See Table 2-5 and 2-7 for the acreage to be treated in each treatment area.

TWIN FALLS

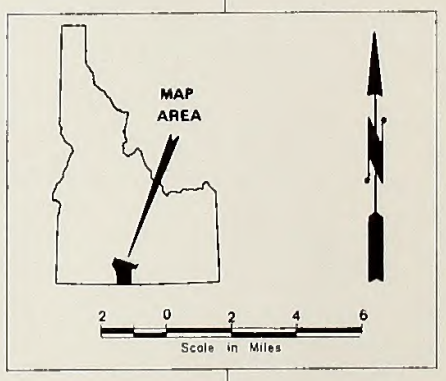
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 2 - 3

ADDITIONAL IMPROVEMENTS (ALTERNATIVES B and D)



E.I.S. Boundary
County Boundary
U.S.F.S. Boundary
Highway/Road
River/Stream
Cities, Towns
Township Line

MAXIMUM LIVESTOCK USE RANGE IMPRDVEMENTS

LAND TREATMENTS*

- SPRAY
- SPRAY and DRILL SEED
- BURN and DRILL SEED
- RAIL, AERIAL SEED
- PLOW and DRILL SEED
- DRILL SEED
- SPRAY MAINTENANCE
- BURN MAINTENANCE

RANGE PROJECTS*

- WATER TROUGH
- FENCE
- PIPELINE
- SPRING DEVELOPMENT
- RESERVOIR
- PUMPING STATION
- STORAGE TANK
- WELL

WATERSHED/WILDLIFE PROJECT**

- FENCE

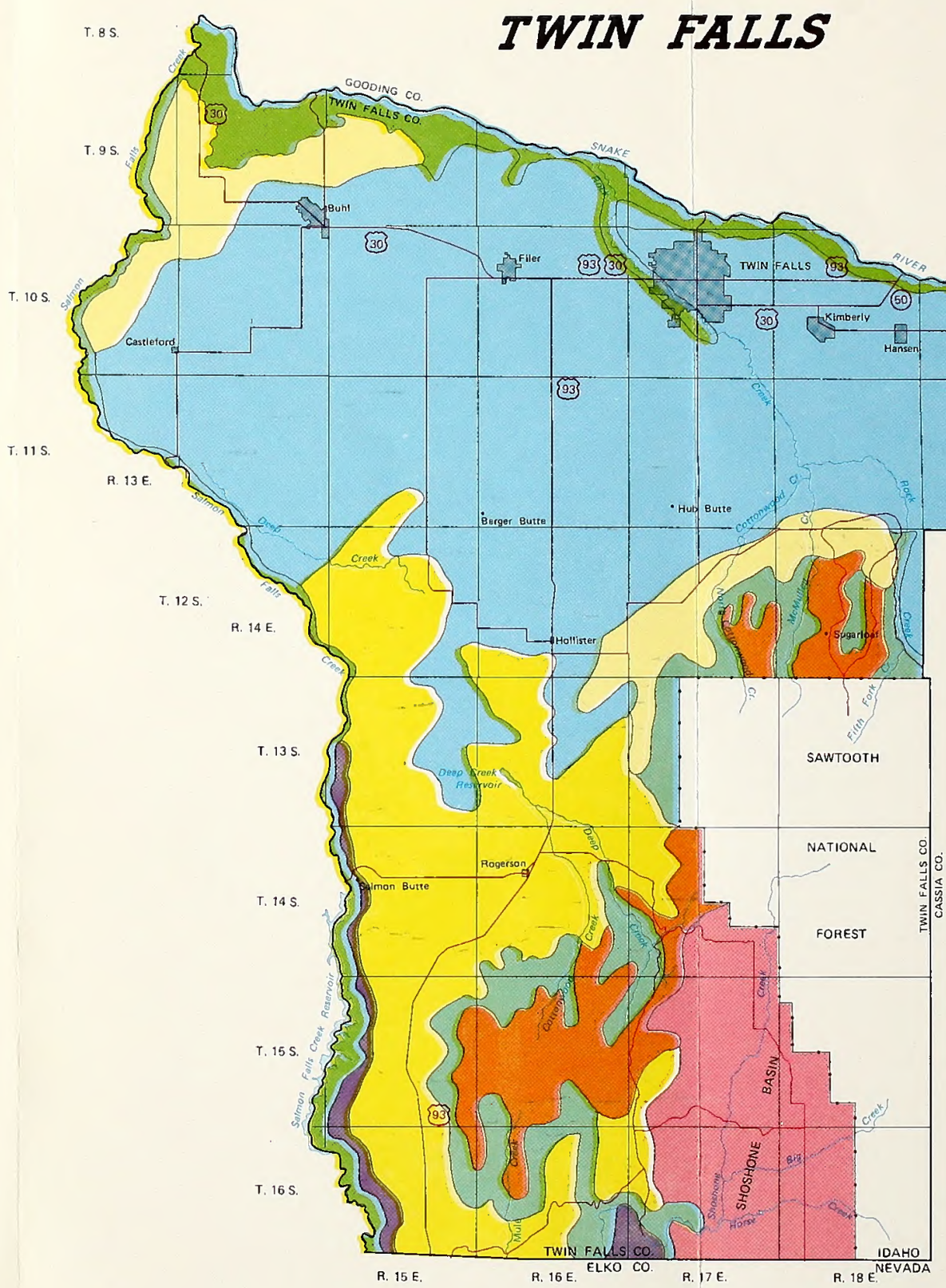
*All land treatments and range projects shown on Map 2-2 areincluded as part of Alternative B. Acreages for treatment areas are found in Tables 2-5, 2-7, 2-9 and 2-10.

**All wildlife projects shown on Map 2-2 are included as part of Alternative D.

TWIN FALLS

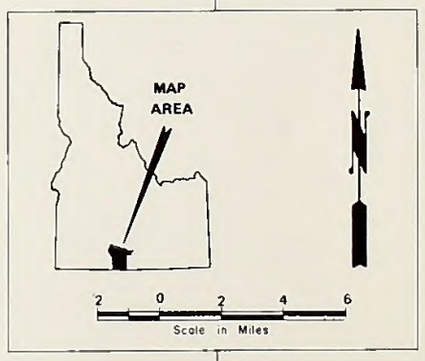
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 3 - 1

GENERAL SOIL ASSOCIATIONS



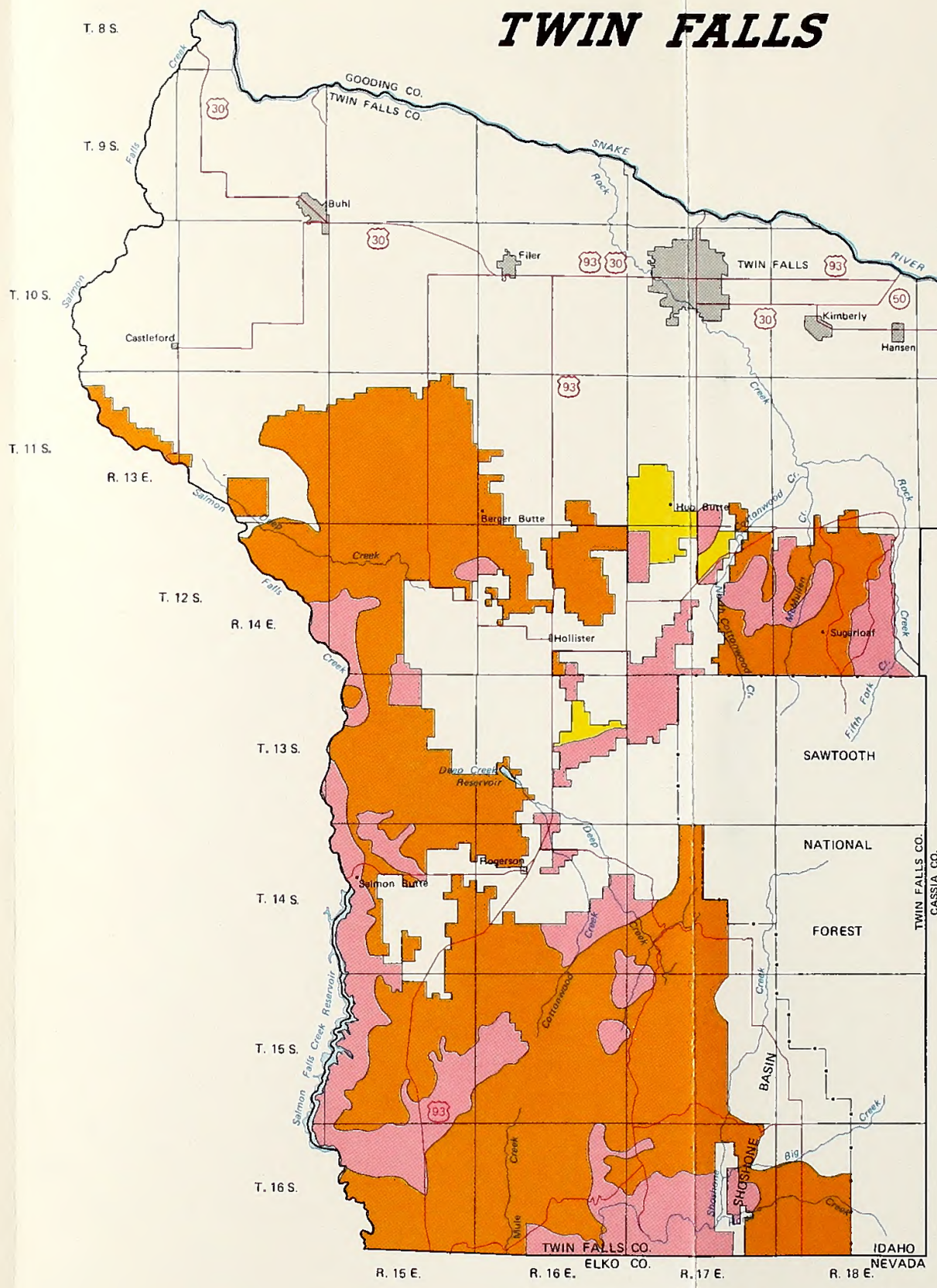
E.I.S. Boundary
County Boundary
U.S.F.S. Boundary
Highway/Road
River/Stream
Cities, Towns
Township Line

BEDKE – DECLO
PORTNEUF – MINIDOKA – MINVENO
CHUSKA
OSHONE – TOCK – BRAG
BROSE – AMBOAT
ROCK OUTCROP – XERORTHENTS – KUDLAC
HUPP – NILE – DOODLELINK
ACKETT

TWIN FALLS

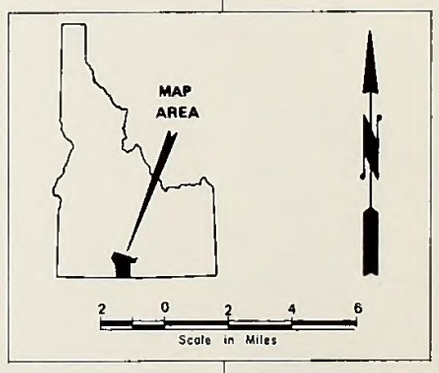
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 3 - 2

EROSION CONDITION CLASSES



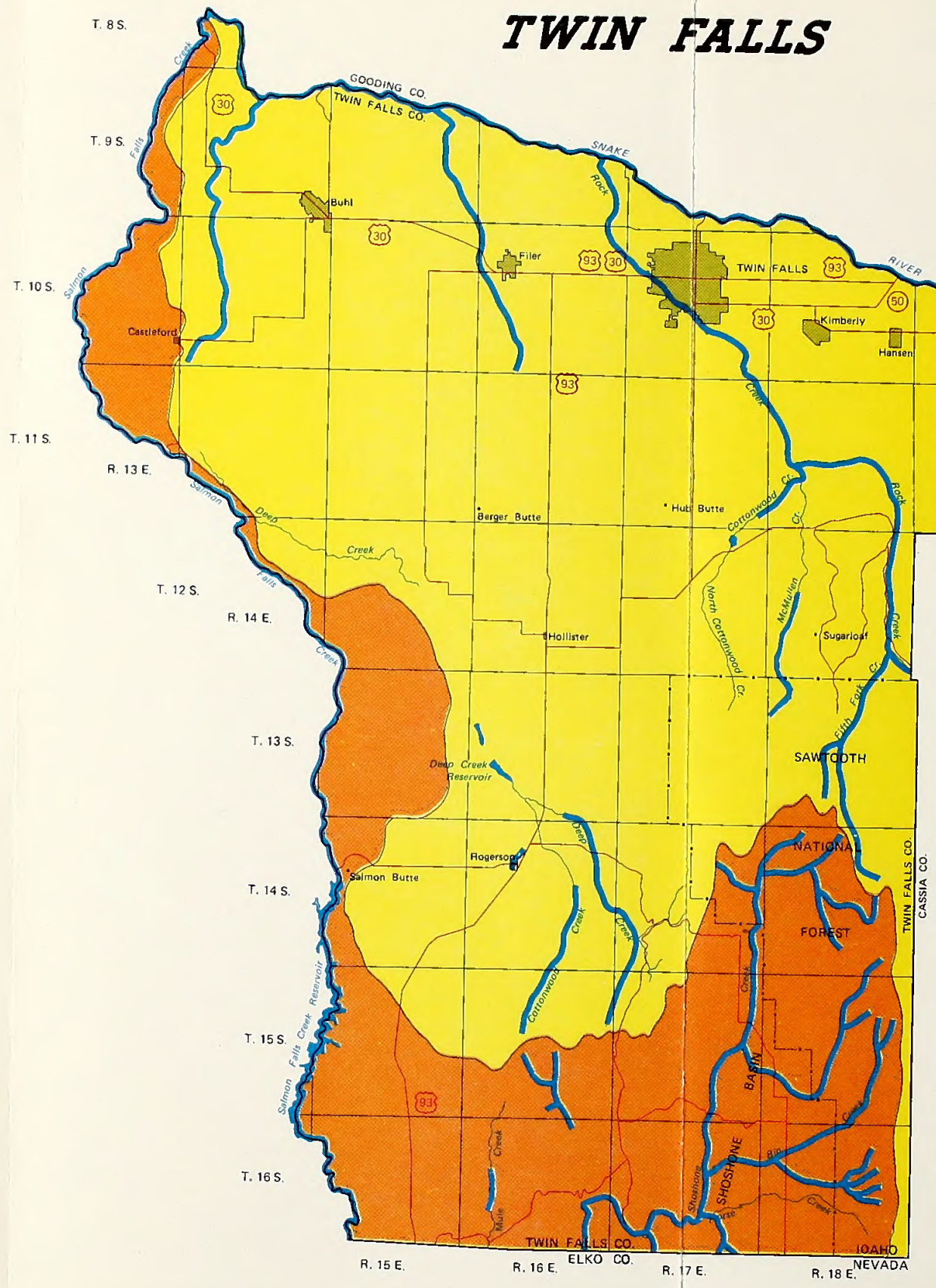
E.I.S. Boundary	
County Boundary	
U.S.F.S. Boundary	
Highway/Road	
River/Stream	
Cities, Towns	
Township Line	

STABLE	0 – 20	
SLIGHT	21 – 40	
MODERATE	41 – 60	

TWIN FALLS

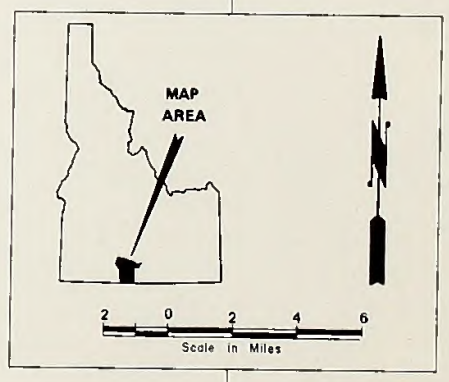
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 3 - 3

WATERSHEDS



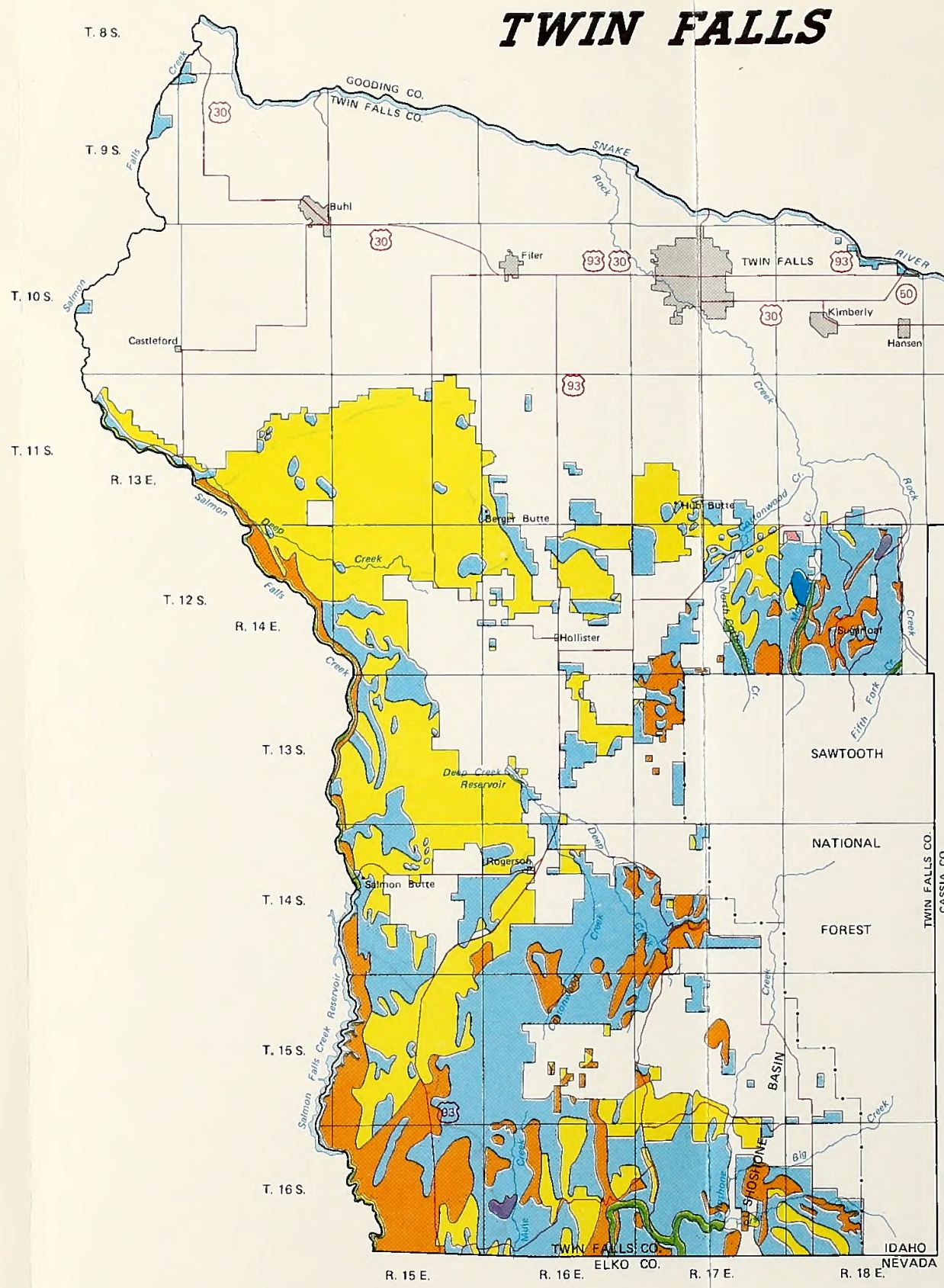
E.I.S. Boundary.....
County Boundary.....
U.S.F.S. Boundary.....
Highway/Road.....
River/Stream.....
Cities, Towns.....
Township Line.....

SALMON FALLS CREEK DRAINAGE.....
SNAKE RIVER DRAINAGE.....
PERENNIAL STREAM.....
RESERVOIR.....

TWIN FALLS

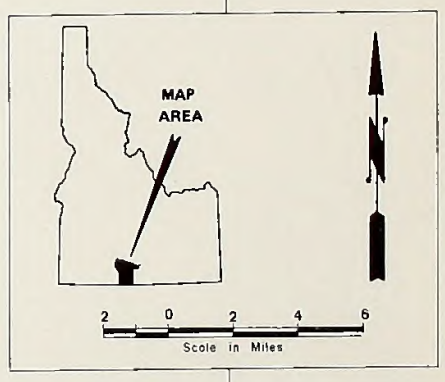
GRAZING
ENVIRONMENTAL
IMPACT STATEMENT

IDAHO
1981



MAP 3 · 4

MAJOR VEGETATION TYPES



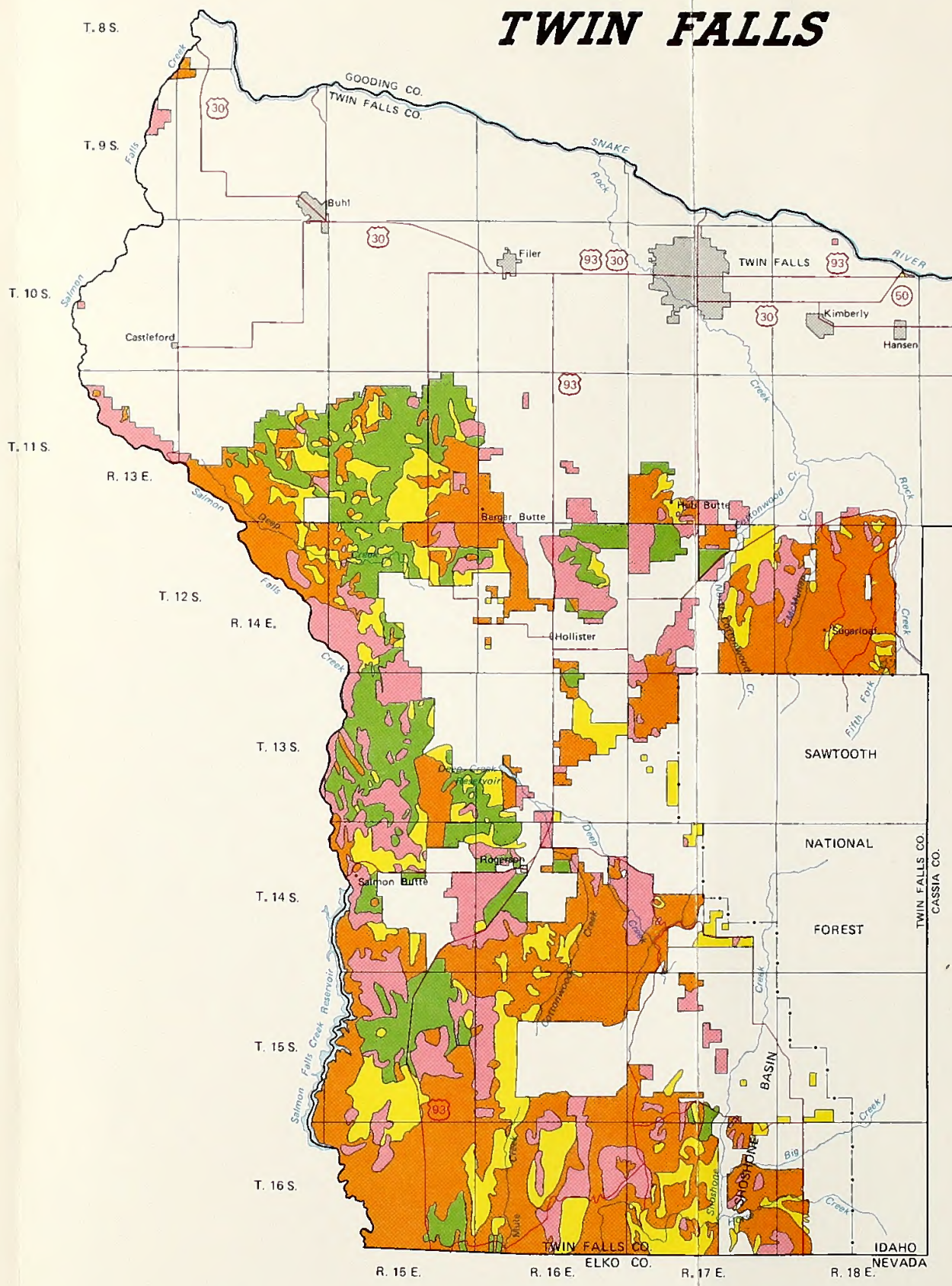
E.I.S. Boundary
County Boundary
U.S.F.S. Boundary
Highway/Road
River/Stream
Cities, Towns
Township Line

BIG SAGEBRUSH
JUNIPER
BLACK GREASEWOOD
MIO GRASS (SEEDING)
ANNUALS
RIPARIAN VEGETATION
LOW SAGEBRUSH

TWIN FALLS

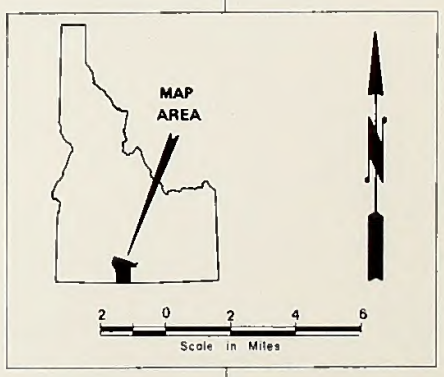
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 3-5

RANGE CONDITION



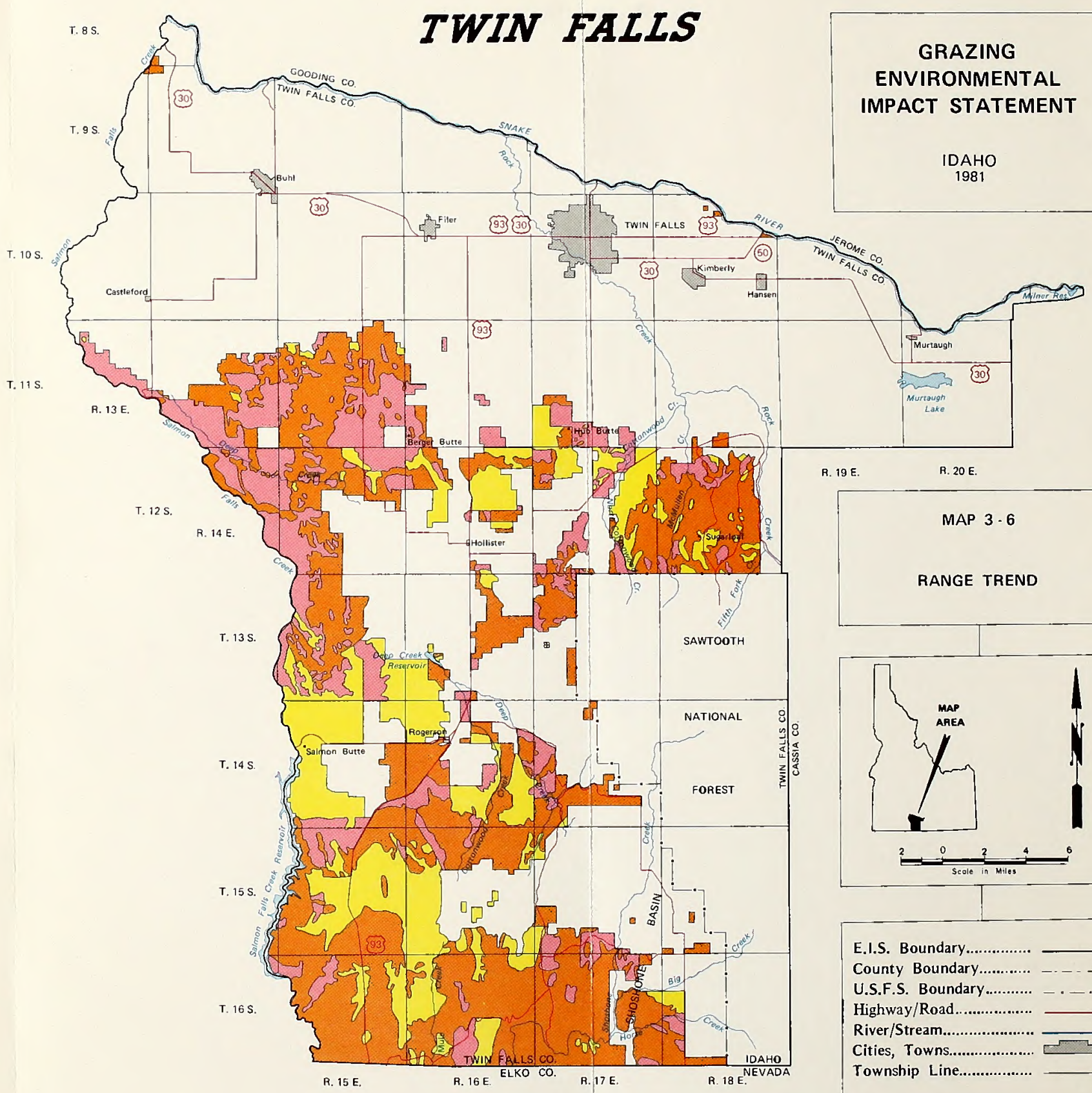
E.I.S. Boundary
County Boundary
U.S.F.S. Boundary
Highway/Road
River/Stream
Cities, Towns
Township Line

EXCELLENT
GOOD
FAIR
POOR

TWIN FALLS

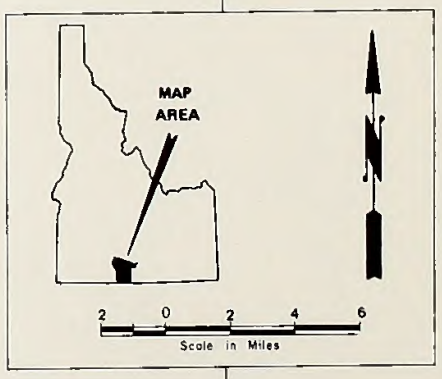
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 3 - 6

RANGE TREND



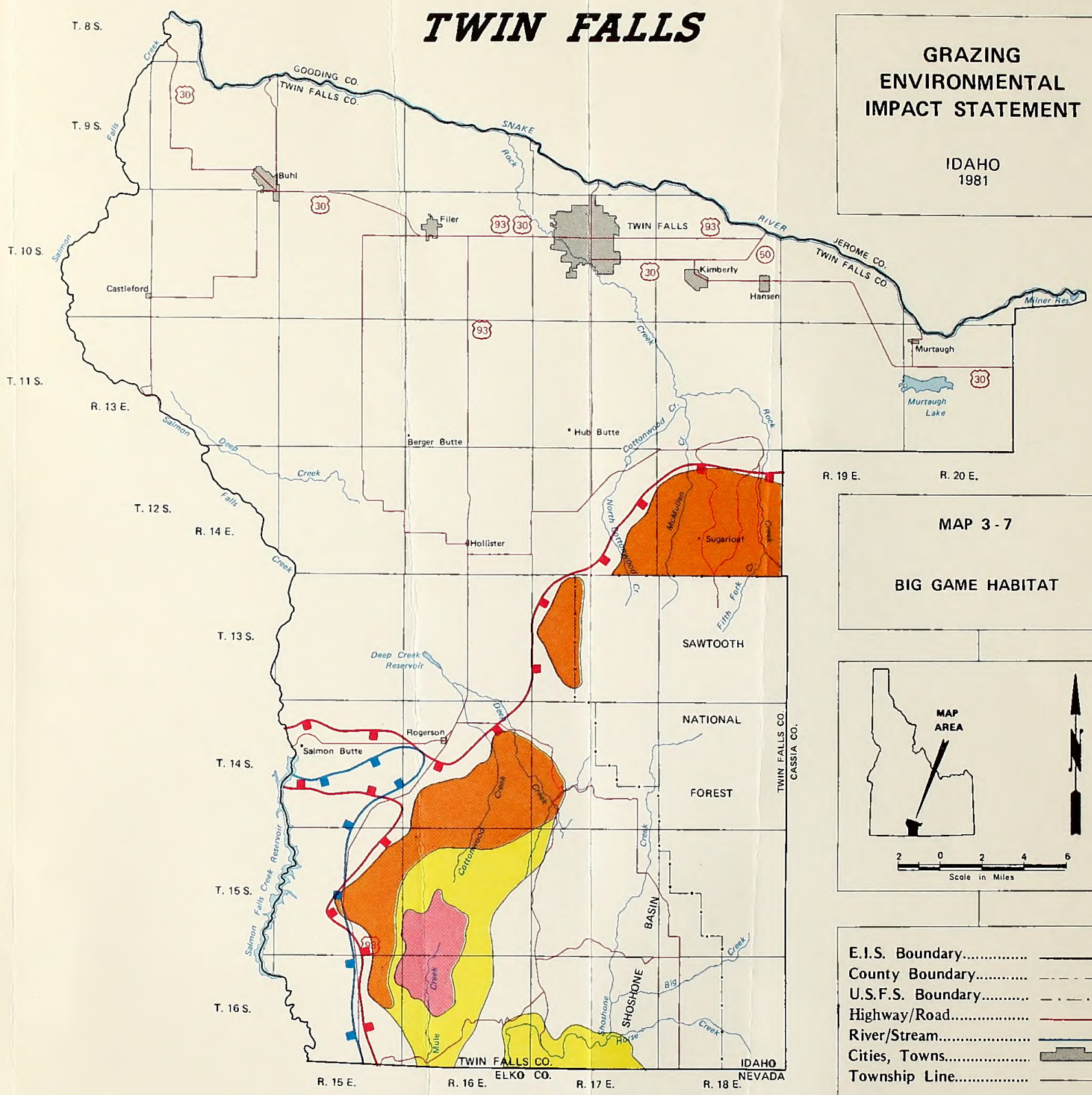
E.I.S. Boundary.....
County Boundary.....
U.S.F.S. Boundary.....
Highway/Road.....
River/Stream.....
Cities, Towns.....
Township Line.....

UPWARD.....
STATIC.....
DOWNWARD.....

TWIN FALLS

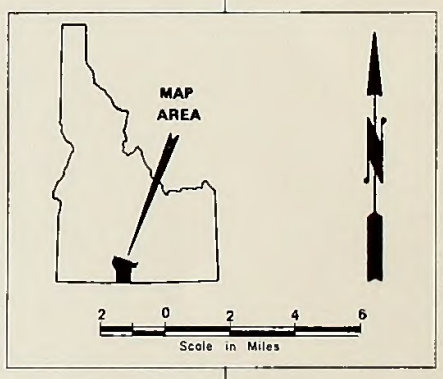
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 3-7

BIG GAME HABITAT



E.I.S. Boundary.....
County Boundary.....
U.S.F.S. Boundary.....
Highway/Road.....
River/Stream.....
Cities, Towns.....
Township Line.....

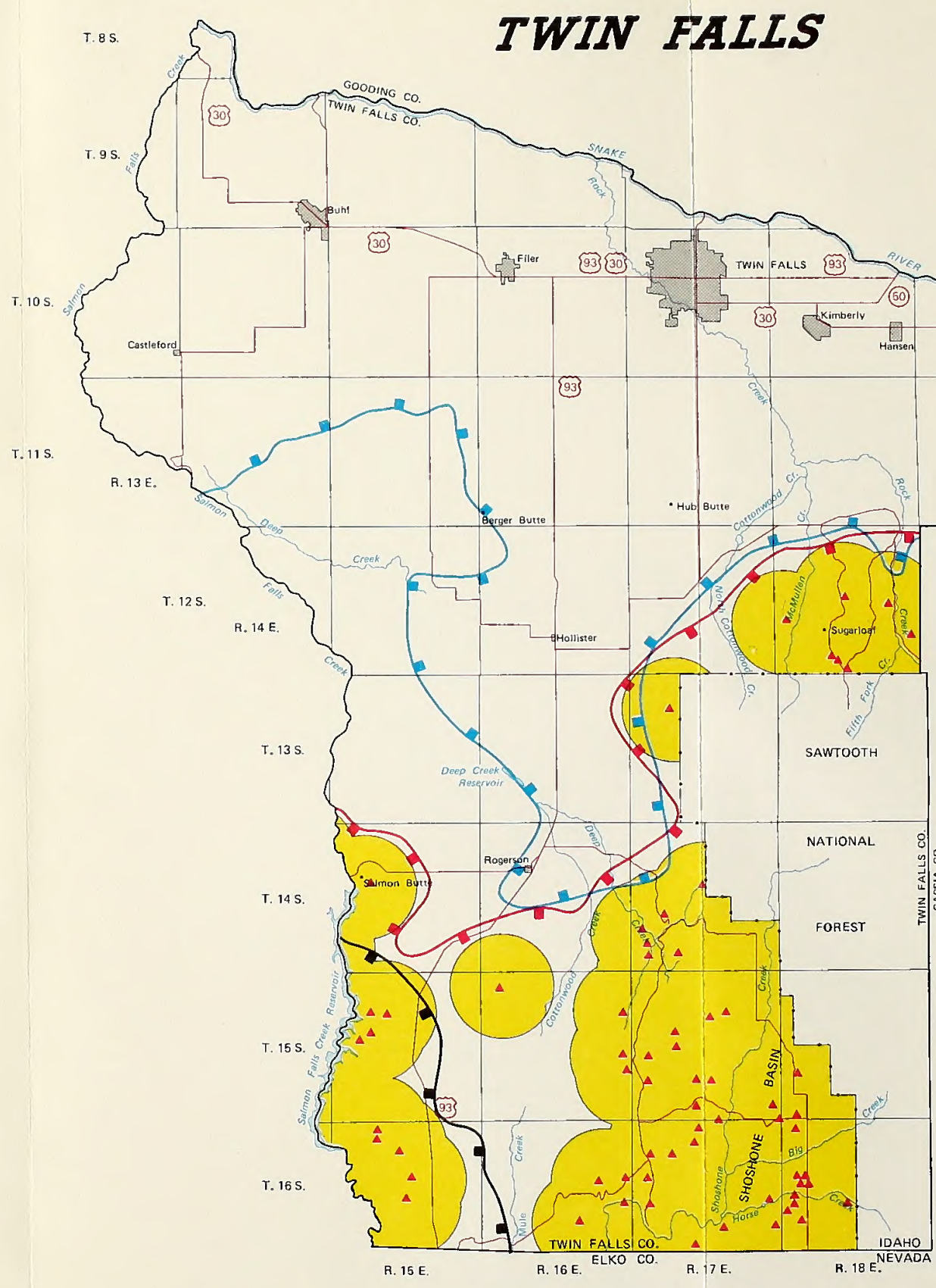
BIG GAME RANGES

MULE DEER YEARLONG RANGE.....
MULE DEER CRITICAL WINTER RANGE.....
MULE DEER CRITICAL SUMMER RANGE.....
MULE DEER WINTER RANGE.....
PRONGHORN ANTELOPE YEARLONG RANGE.....

TWIN FALLS

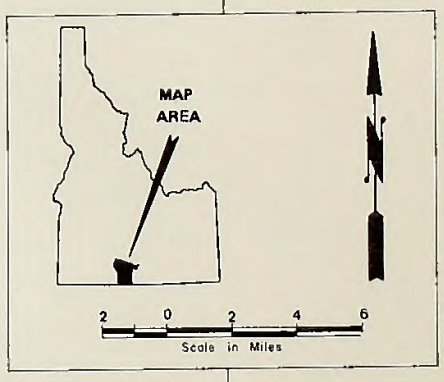
GRAZING
ENVIRONMENTAL
IMPACT STATEMENT

IDAHO
1981



MAP 3 - 8

UPLAND GAME HABITAT



E.I.S. Boundary
County Boundary
U.S.F.S. Boundary
Highway/Road
River/Stream
Cities, Towns
Township Line

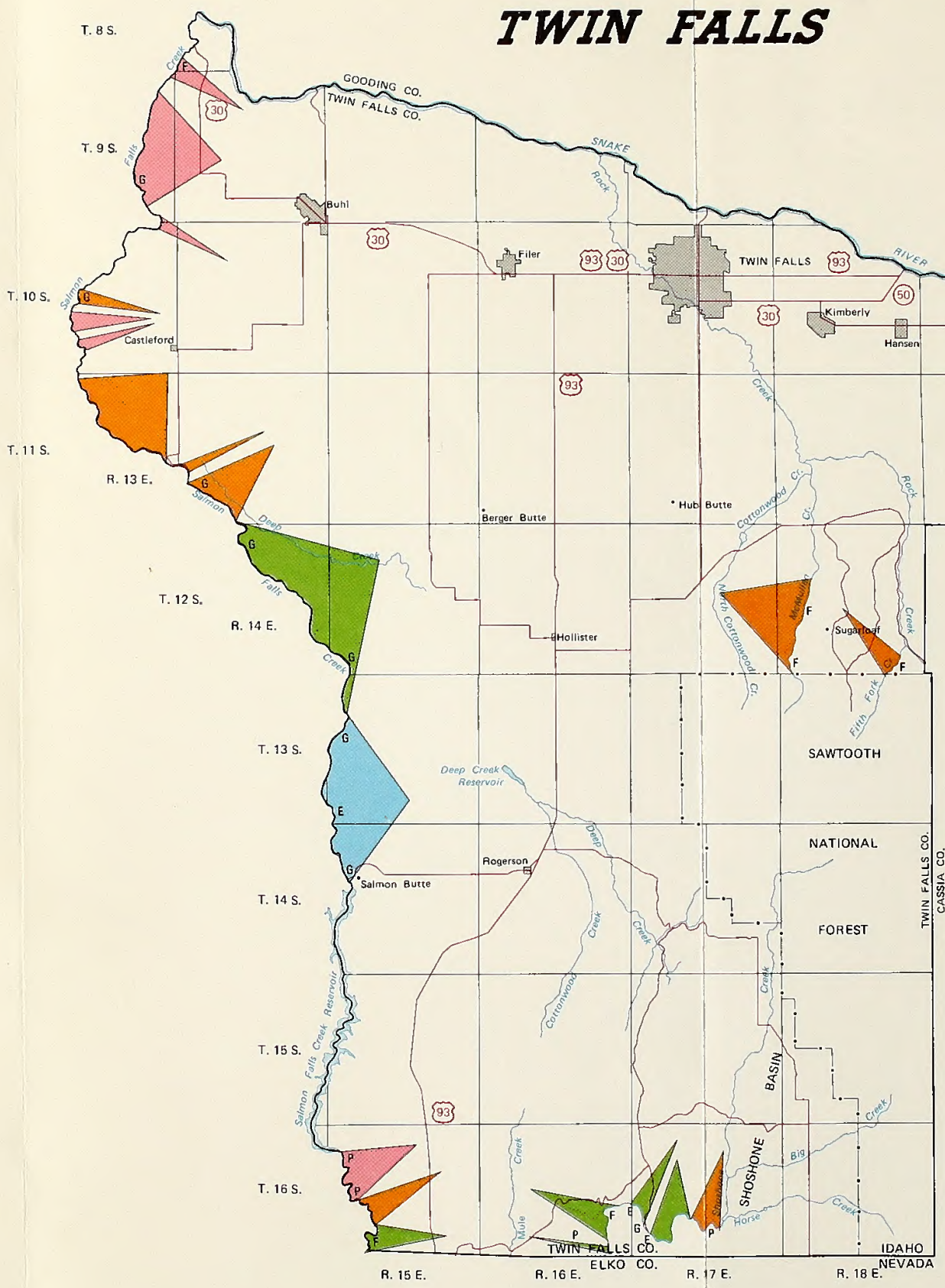
UPLAND GAME BIRD HABITATS

SAGE GROUSE YEARLONG RANGE
SAGE GROUSE STRUTTING GROUND
SAGE GROUSE CRITICAL NESTING and BROOD REARING AREA
SAGE GROUSE CRITICAL WINTER RANGE
RING-NECKED PHEASANT YEARLONG RANGE

TWIN FALLS

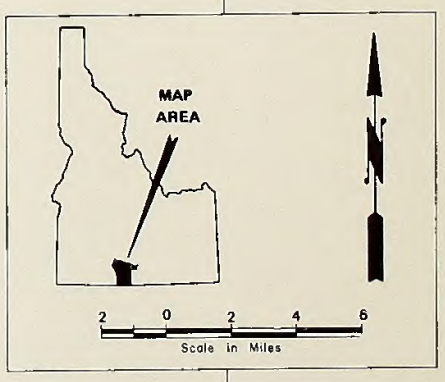
GRAZING
ENVIRONMENTAL
IMPACT STATEMENT

IDAHO
1981



MAP 3-9

STREAM CONDITION CLASSES



E.I.S. Boundary
County Boundary
U.S.F.S. Boundary
Highway/Road
River/Stream
Cities, Towns
Township Line

FISHERIES CONDITION CLASS

EXCELLENT
GOOD
FAIR
POOR

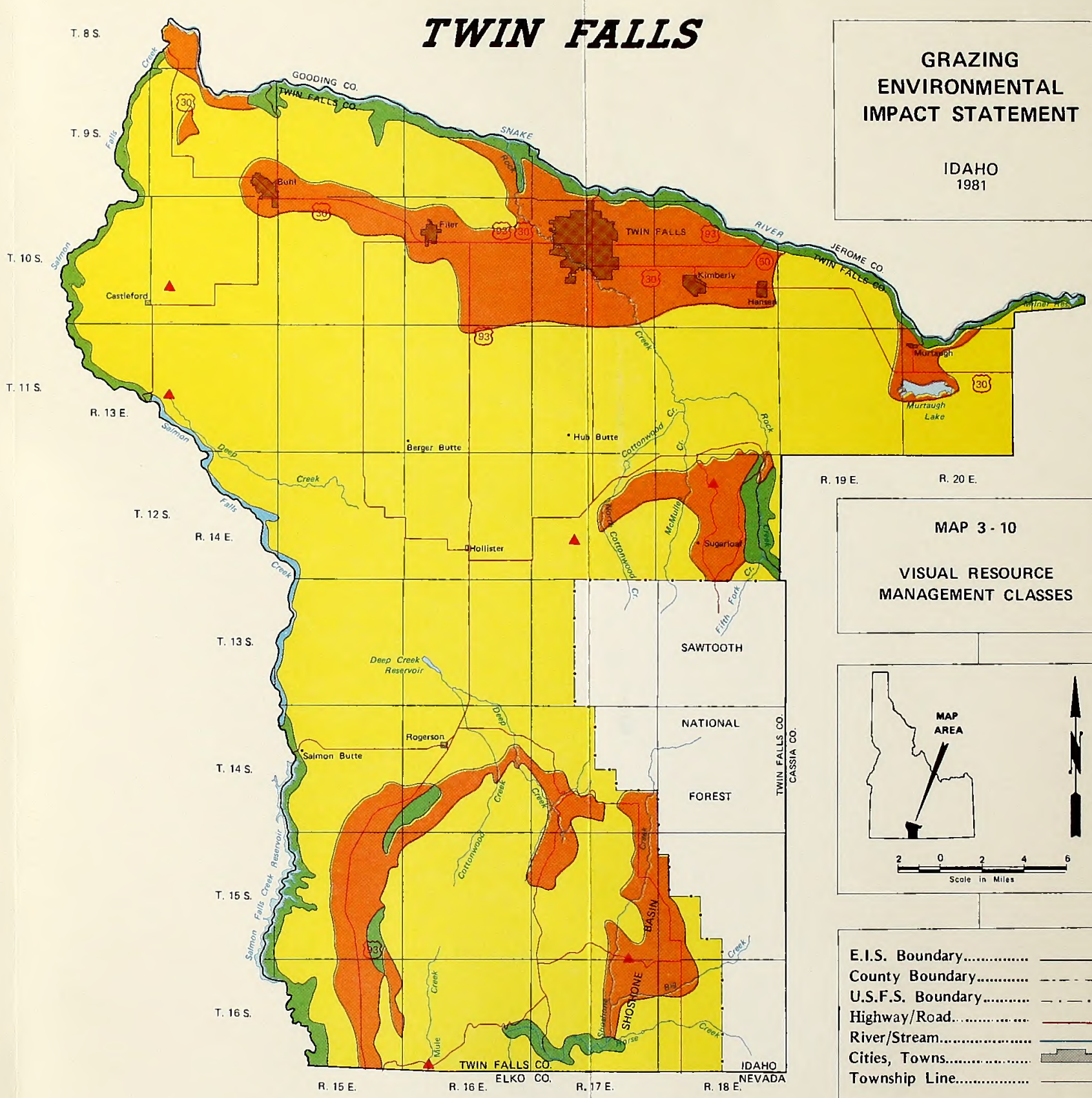
HABITAT CONDITION CLASS

EXCELLENT ..... E
GOOD ..... G
FAIR ..... F
POOR ..... P

TWIN FALLS

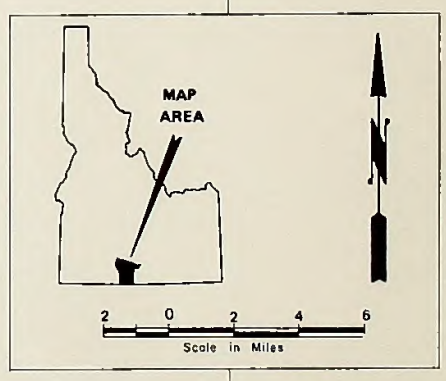
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO
1981



MAP 3 - 10

VISUAL RESOURCE MANAGEMENT CLASSES



E.I.S. Boundary.....
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U.S.F.S. Boundary.....
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River/Stream.....
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Township Line.....

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COVER PHOTOGRAPH:

Twin Falls of the Snake River circa 1907

Photo taken by C. E. Bisbee

Photo courtesy of The Twin Falls County Historical Museum